SHARP

Service Manual

MODEL SA-603HA

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SHARP CORPORATION OSAKA, JAPAN

SPECIFICATIONS

Circuit:	LW/MW/SW/FM 4-band superheterodyne system with FM multiplex circuit AGC and HF-TR circuits
Semiconductors:	1-IC, 30 transistor (including 1-FET) 19-diode
Power source:	110/220/240V, 50/60 Hz
Power consumption:	63 W
Dimensions:	467(W) x 106(H) x 316(D) mm
Weight:	9.2 kg

FM SECTION

Frequency range:	88 – 106 MHz
Usable sensitivity (at a deflection of 22.5 kHz and a signal/noise ratio of 26 dB):	3 μV
Antenna:	240 ohm or 300 ohm
Frequency response:	40 ~ 12,500 Hz ± 3 dB
Deemphasis:	50 μsec. (time constant)
Image rejection (at 98 MHz):	50 dB
IF rejection:	55 dB
S/N ratio:	60 dB
Harmonic distortion:	1%
Capture ratio:	3 dB
Selectivity (± 300 kHz):	40 dB

FM STEREO SECTION

Channel separation (at 1 kHz):	30 dB
Frequency response:	40 ~ 12,500 Hz ± 3 dB
Harmonic distortion:	1.5%

AM SECTION

Frequency range	
MW:	520 ~ 1,620 kHz
LW:	150 ~ 370 kHz
SW:	6 ~ 18 MHz
Sensitivities (DIN 45300 for 6 dB)	
MW:	50 μV
LW:	100 μV
SW:	20 μV
Intermadiate frequency:	455 kHz
Selectivity (± 10 kHz de-tune):	25 dB

AUDIO SECTION

Music power output (at 4 ohm):	30W + 30W (at 1% THD)
Harmonic distortion (at 5W):	0.3%
Frequency response:	40 ~ 20,000 Hz ± 1.5 dB (DIN 45500)
Hum and noise (DIN 45500)	
Residual:	3mV
Maximum volume	
MAG:	20mV
AUX/TAPE:	20mV
Recording output Level:	30mV
Equalizer:	RIAA (PHONO – MAG) (Refer to NOTE 2)

DISASSEMBLY

CHASSIS REMOVAL (Refer to Figure 1)

1. Disconnect all leads connected to the back of the set.
2. Remove 4 screws retaining the cabinet.
3. Lift up the cabinet from the chassis.
4. Remove 11 screws retaining the chassis on the bottom place.

FRONT PANEL REMOVAL

1. Remove the cabinet as described in Chassis Removal.
2. Remove 7 knobs from the front panel.
3. Remove 6 screws retaining the front panel.
4. Gentlty pull out the panel while holding both sides.

DIAL CORD STRINGING (Refer to Figure 2)

Change to stringing as illustrated in figure.

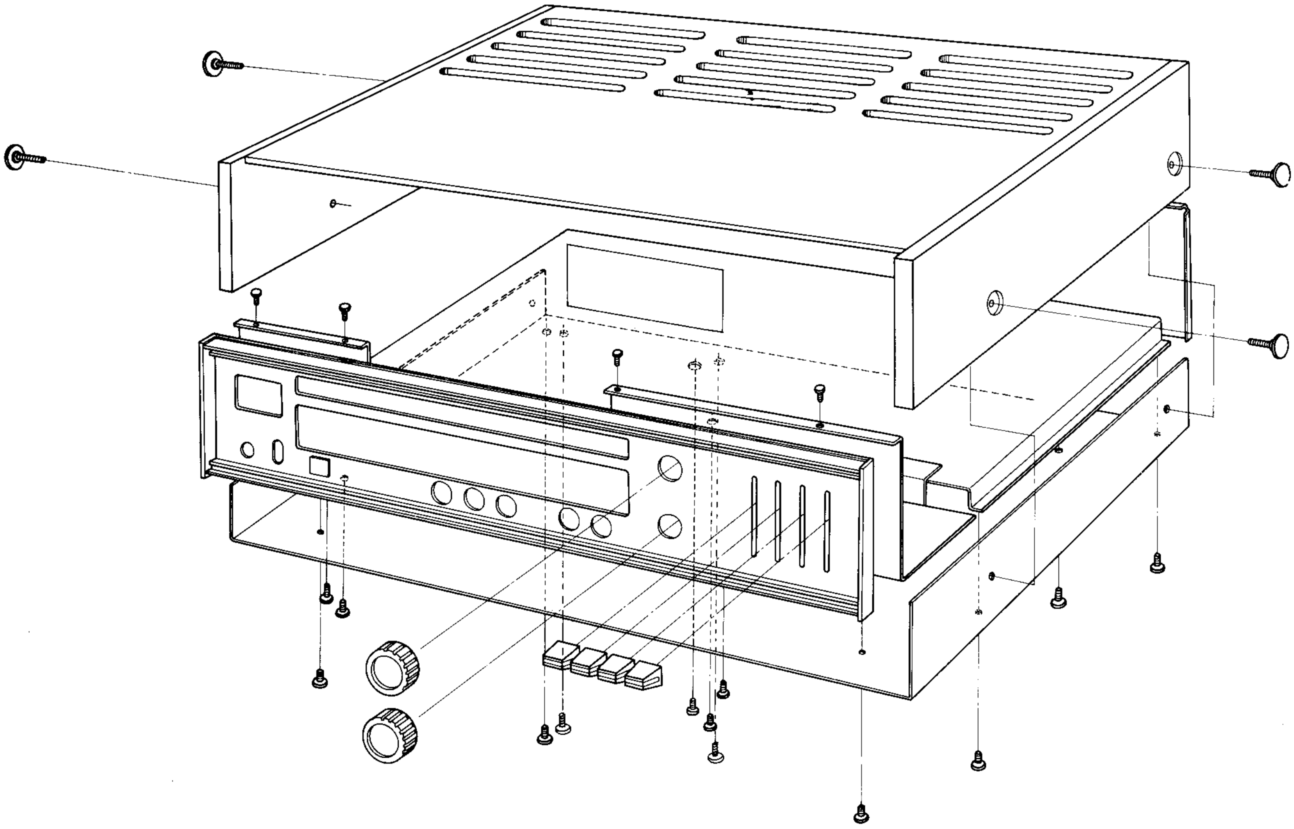
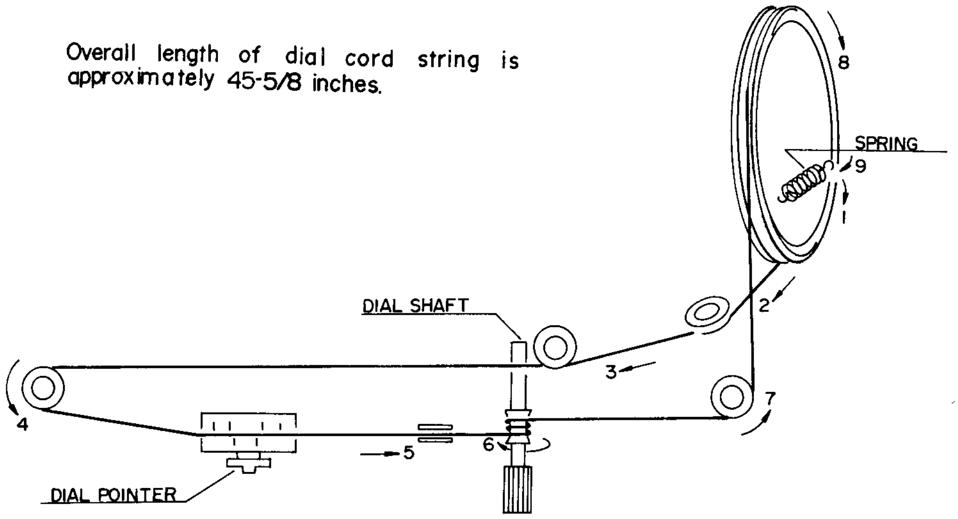


Figure 1 CHASSIS REMOVAL



Overall length of dial cord string is approximately 45-5/8 inches.

Figure 2 DIAL CORD STRINGING

CIRCUIT DESCRIPTION

This model is a tuner-amplifier with LW/MW/SW/FM/FM multiplex.

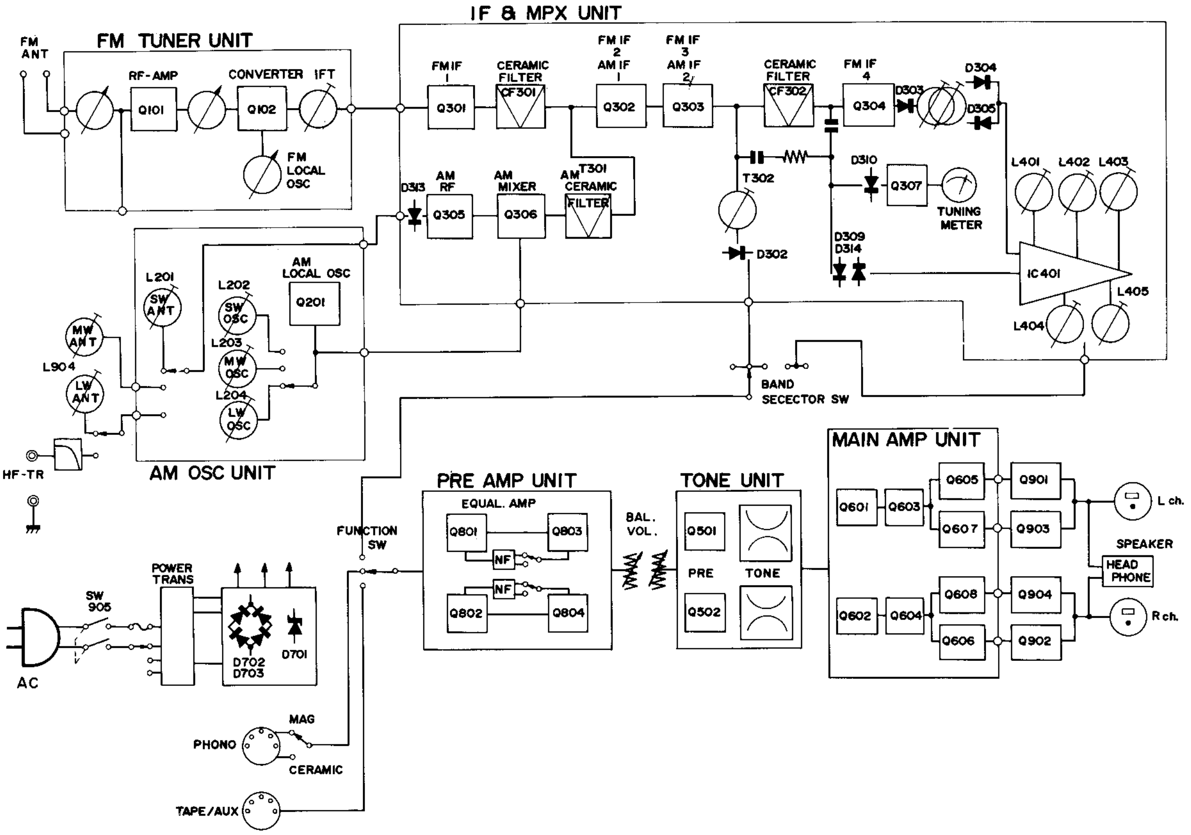

IF & MPX UNIT
FM ANT
FM TUNER UNIT
RF-AMP
CONVERTER
IFT
Q101
Q102
FM LOCAL OSC
FM IF 1
CERAMIC FILTER
CF301
FM IF 2
AM IF 1
FM IF 3
AM IF 2
Q301
Q302
Q303
CERAMIC FILTER
CF302
FM IF 4
Q304
D303
D304
D305
AM RF
AM MIXER
AM CERAMIC FILTER
T301
D313
Q305
Q306
D310
T302
Q307
TUNING METER
D302
D309
D314
L401
L402
L403
IC401
L404
L405
AM LOCAL OSC
L201
SW ANT
L202
SW OSC
Q201
L203
MW OSC
L204
LW OSC
MW ANT
L904
LW ANT
HF-TR
AM OSC UNIT
BAND SECECTOR SW
MAIN AMP UNIT
Q601
Q603
Q605
Q607
Q901
Q903
Q602
Q604
Q608
Q606
Q904
Q902
L ch.
SPEAKER
HEAD PHONE
R ch.
PRE AMP UNIT
EQUAL. AMP
Q801
Q803
NF
Q802
Q804
FUNCTION SW
BAL. VOL.
TONE UNIT
Q501
Q502
PRE
TONE
POWER TRANS
SW 905
AC
D701
D702
D703
MAG
PHONO
CERAMIC
TAPE/AUX

Figure 3 BLOCK DIAGRAM

FM TUNER SECTION

Radio frequency input got in on the antenna coil L101 is amplified at FET Q101. Then the radio frequency signal is transmitted to Q102 through the tuned circuits (L102), mixed with the local oscillation, changed to intermediate frequency, passes through T101 which is tuned to 10.7 MHz , and transmitted to the next IF section.

FM IF SECTION

The signal from the tuner is amplified at Q301 and successively amplified at Q302, Q303 through CF-301 and at Q304 through CF-302 and finally ratio-detected at T303, D304 and D305 so that audio frequency output can be obtained. The ceramic filter applied here is a two stage type whose selectivity corresponds to that of a four stage double tuned IF. Q307 is a tuning meter amplifier and operative on AM operation. D311 and D312 are diodes for AGC. When the unit received so strong signal, these diodes give the negative feed back to RF, also prevent the signal from inferiority.

FM MPX SECTION

The out put of FM detector is added to IC-401, IC-401 is FM MPX demodulator provided MPX muting circuit and switching circuit for stereo indicator. D-309 and D-314 are diodes for MPX muting. When the signal (It has a strength ensugh to operate the unit on FM stereo.) is added to this unit, these 2 diodes make change IC-401 in be operating. L-401 and L-402 are incorporated in 19 kHz tuned circuit. L-403 is incorporated in 38 kHz tuned circuit. L-404 and L-405 are incorporated in 38 kHz trap circuit, also eliminate the leak carrier.

AM SECTION

AM signal got in on the ferrite bar antenna L-904 (for MW, LW) or SW antenna coil L-201, also be RF amplified by Q-305. Next, the output is added to MIX circuit (Q-306) through resistor. Q-201 is the local osillator, and it compose of 3-osillation circuits with L-204(LW), L-203(MW) and L-202(SW). Next, the output is added to Emitter of Q-306, and be mixed with RF signal, then converted to 455 kHz intermediate frequency through T-301. IF signal is converted to AF output while through Q-302, 303 (be amplified) and Q-302, detecting coil of T-302 (be AM tuned) T-301 is the FET provided an ceramic filter. The sufficient gain is given by only this transistor.

AUDIO SECTION

Audio section consists of 2 pre-amplifiers, two-control circuit and power amplifier.

The transistor Q801, Q802, Q803 and Q804 construct the equalizer amplifiers which have rich NF and assure improved frequency response. wide dynamic range and minimum distortion. The output signal of the collector Q803, Q804 are coupled to the volume control circuit.

The output signal of the volume control circuit is then led to the base of another pre-amplifies Q501, Q502. The output signal of this pre-amplifier is coupled to the tone control circuit to get the highest frequency response. The output signal of the tone control circuit is then led to the base of the audio amplifier Q601 through the coupling capacitor C601. The signal amplified in this stage is fed to the base of the audio driver Q603 through the coupling capacitor C607.

The varistors D601 and D603 connected the collector of Q603 compensate for thermal deviation in the Vbe of Q605, Q607, Q901 and Q903 are connected with "Darlington Complementury Form" (Refer to NOTE 1). The transistor Q901 and Q903 function as a power amplifier.

They are located on an efficient heat sink in order to protect them against excessive heat generated at higher volume operation.

The variable resistor R623 connected in series with the varistors is used for adjustment of bias current of Q901 and Q903 at no signal condition. When replacing the power transistors Q901 and Q903 readjustment of bias current by use of the variable resistor R623 is necessary.

Variable resistor R613 is connected in series with the resistor R617. R613 is adjusted so that voltage between the collector and the ground of Q903 is one half the value that is measured the collector of Q901 and ground.

Balanced operation of Q901 and Q903 is consequently obtained. The speaker output is taken from the collector of Q903 through the capacitor C619 and the resistor R635. Another negative feedback voltage fed from the collector of Q903 through the capacitor C613 and the resistor R627 improves frequency response, minimizes distortion and assures stable performance.

POWER SUPPLY SECTION

The power supply section can be devided into two parts: output stage power supply, FM MPX indicator supply and the other lights supplies, etc.

The diodes D702 and D703 compose a dual wave rectifying circuit which feeds 53V to the power output stages.

The zener diode D701 ensures a uniform voltage supply and provides a stable 10 voltage even when operating at full volume.

NOTE

1. Darligton connection (Figure 4).

Two transistors are connected in a common collector form, to the emitter of a front transistor and to the base of a rear transistor in series.

Thus, these transistors compose a NPN type transistor as illustrated below. Higher current than a transistor is obtained. These transistors need fewer additional parts.

2. RIAA characteristics (Figure 5)

Sound sources on the record discs are generally recorded under the RIAA standard. The curve is characterized to strengthen gradually bass to treble.

For playing back these sound sources, the amplifier should have play back characteristics which gradually strengthen treble to bass. This is called "RIAA recording" or "Playback characteristics."

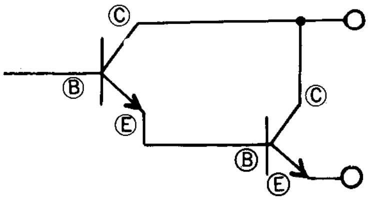


Figure 4 DARLINGTON CONNECTION

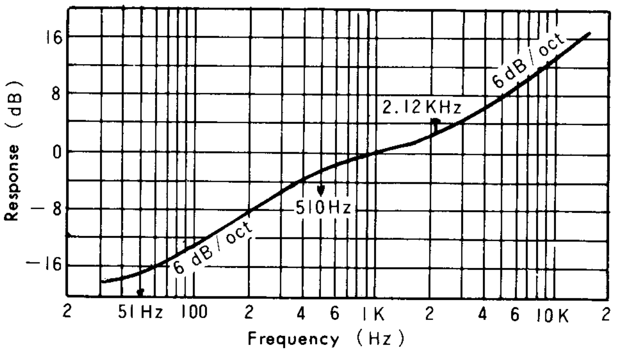


Figure 5 RIAA CHARACTERISTICS

POWER TRANSISTOR REPLACEMENT

The power transistors used in the output stages are matched pairs. They have been selected so that they have very similar current gain and trans-conductance characteristics. This matching is necessary in order to assure optimum preformance, but is such that if a transistor fails in either channel, another transister in that channel must also be replaced. Transistors are supplied only in matched pairs for replacement.

The transistor diffuse a large amount of heat which must be carried off in order to prevent damage to the transistors, the collectors of which are thermally connected to the heat sink by means of electrical insulators to avoid grounding. The insulator is a very thin plastic film mounted between the transistor case (collector) and the heat sink. A layer of silicon grease which is a good conductor of heat is applied to both sides of the insulator in order to improve heat sink operation. When the power transistors are replaced the spacer film must be re-installed and a new layer of grease applied to both sides. Case should be taken, lest conductive dust such as metal particles should break through the insulator films. Q901 and Q903, Q902 and Q904 are matched pairs.

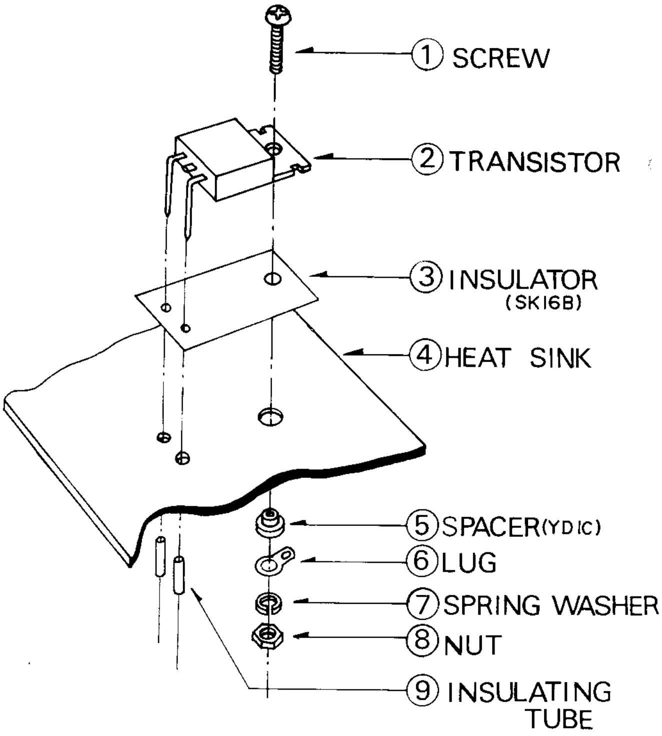


Figure 6 POWER TRANSISTOR REPLACEMENT

VOLTAGE SELECTOR PLUG & FUSE REPLACEMENT

1. The built-in voltage selector allows you to use the set on the following 3 voltages: 110,220 and 240V. Each voltage is selected in the following manner:
   1) Remove the selector cover (provided on the rear) by unscrewing the 2 screws on it (See Figure 7-A)
   2) Pull out the selector plug and reinsert it with the desired voltage coming upward. (See Figure 7-B)
   3) Install the plug cover in its original position. The desired voltage now appears in the plug cover opening.

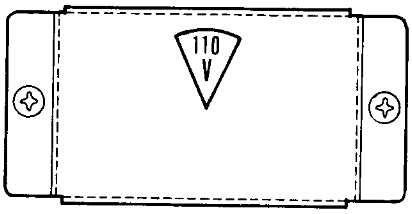


Figure 7-A

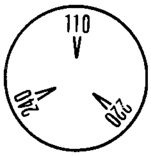


Figure 7-B

2. Before replacing fuses be sure to read carefully the following instructions.
   Important: To avoid electric shock be sure to disconnect the AC power cord from the outlet before removing cabinet case and plug cover of voltage selector, and replacing fuses.
   1) AC LINE FUSE (F-903)
      Provided at the back of the amplifier. If the model fails to function due to a blown fuse, remove the AC line fuse and replace it with a new one. Use a 1.5 ampere cartridge fuse for 110V AC, or a 0.7 ampere one for 220,240V.
   2) PILOT LAMP FUSE (F-901)
      Provided on the chassis near the power transformer.
      If the pilot lamps do not light while the amplifier is operating, the pilot lamp fuse has been blown. After checking for a short on the wiring of pilot lamps, replace the fuse: use 3 ampere fuse.
   3) CIRCUIT PROTECTION FUSES (F-902)
      Provided on the chassis near the heat sinker. If sound through speakers are cut, the protection fuses has been blown. Turn the power switch off immediately, remove the cabinet by loosing the screws on the bottom of the set, and check for a short on the connections between speaker enclosures and amplifier. If short-circuited, repair it and replace the protection fuse: If the fuse is blown again, the output circuit of amplifier may require repairing another new fuse of 3 ampere of the same type.

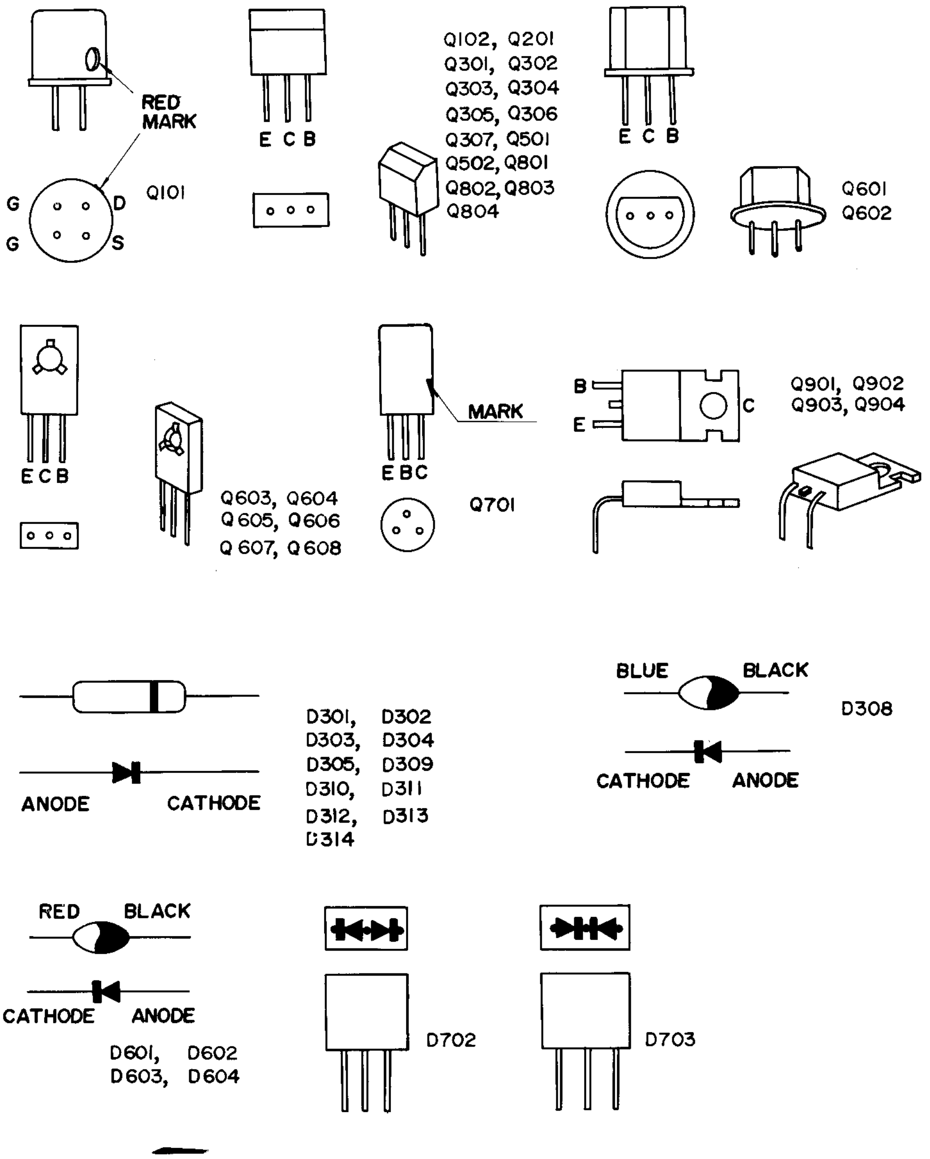

RED MARK
G
G
D
S
Q101
E C B
Q102, Q201
Q301, Q302
Q303, Q304
Q305, Q306
Q307, Q501
Q502, Q801
Q802, Q803
Q804
E C B
Q601
Q602
E C B
Q603, Q604
Q605, Q606
Q607, Q608
MARK
E B C
Q701
B
E
C
Q901, Q902
Q903, Q904
ANODE
CATHODE
D301, D302
D303, D304
D305, D309
D310, D311
D312, D313
D314
BLUE
BLACK
CATHODE
ANODE
D308
RED
BLACK
CATHODE
ANODE
D601, D602
D603, D604
D702
D703

Figure 8 TRANSISTOR NAME AND FORM

ALIGNMENT INSTRUCTIONS

(Refer to CHASSIS LAYOUT and SCHEMATIC DIAGRAM)
Alignment is an exacting procedure and should be undertaken only when necessary. If alignment of AM (MW, LW, SW) and FM is required, either section may be done first. The FM stereo section, however, should be done only if the FM monaural section is properly adjusted. Notes: Don't use a metallic screw driver.

REQUIRED EQUIPMENT:

1. Signal generator with a frequency range of 150 kHz to 1,650 kHz: AM (MW, LW)
2. Signal generator with a frequency range of 5.7 MHz to 18.3 MHz: AM (SW)
3. Signal generator with a frequency range of 86.5 MHz to 108.5 MHz: FM
4. Signal generator wthi a frequency output of 10.7 MHz ± 0.5 MHz: FM
5. Vacuum tube voltmeter (AC-VTVM)
6. Sweep signal generator with a sweep range of at least 500 kHz and center frequency of 10.7 MHz with at least a 10.7 MHz marker. (Ext. marker may be used.)
7. Oscilloscope with a wide range amplifier of approximately 100 kHz.
8. Test loops, a coil of any size wire, one turn or more.
9. FM stereo signal generator.
10. Audio signal generator with a frequency range of 20 Hz to 100 kHz.

Notes: Allow the set at least five minutes to warm up before attempting alignment. During alignment keep the signal generator output at the lowest level that will maintain a usable output from the set.

For the adjustment of stereo separation, the FM stereo generator output is usually 1,000 μV. Incorrect grounding to the metal chassis may pick up an unwanted 10.7 MHz signal from the final IF stage, which will cause a regenerative sweep response on the sweep curve and result in misalignment.

Therefore always connect a ground to point K303.

Ground connection of signal generator	chassis ground
Generator modulation (AM)	30%, 400 Hz
Generator modulation (FM)	22.5 kHz, 400 Hz
Generator modulation (FM stereo)	Ch. L. or Ch. R, 12 kHz, 1000 Hz Mod.

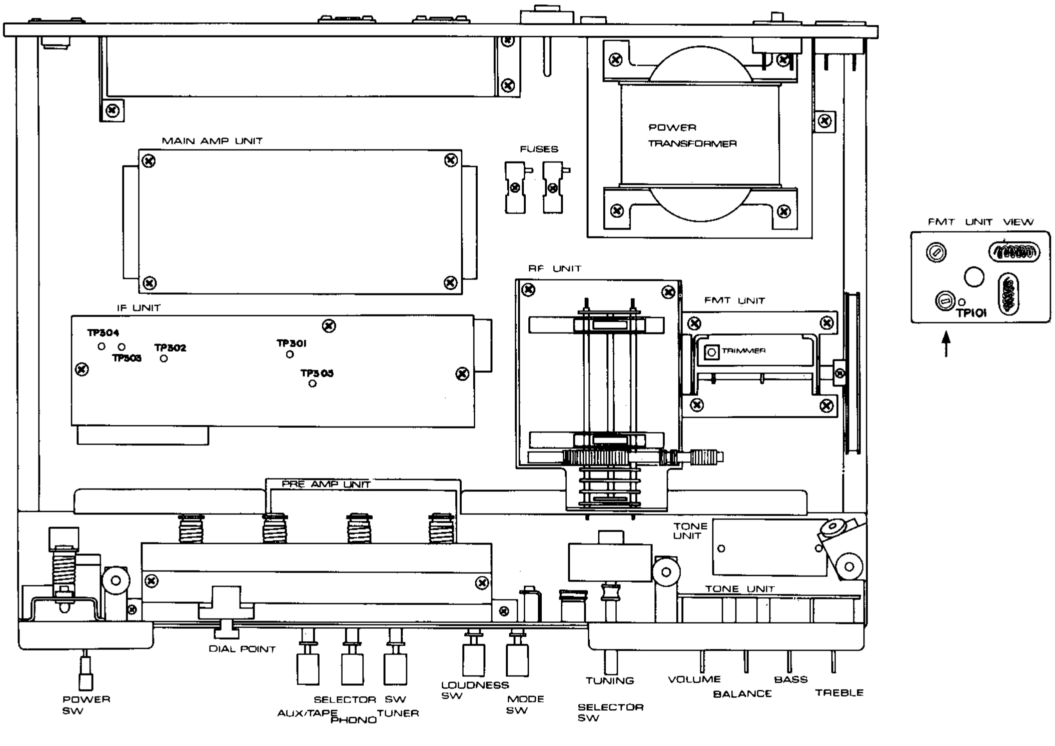

MAIN AMP UNIT
FUSES
POWER TRANSFORMER
RF UNIT
FMT UNIT
TRIMMER
IF UNIT
TP304
TP303
TP302
TP301
TP305
PRE AMP UNIT
TONE UNIT
TONE UNIT
DIAL POINT
POWER SW
SELECTOR SW
AUX/TAPE
PHONO
TUNER
LOUDNESS SW
MODE SW
TUNING
SELECTOR SW
VOLUME
BALANCE
BASS
TREBLE
FMT UNIT VIEW
TP101

Figure 9 CHASSIS LAYOUT

AM IF ALIGNMENT (MW, SW, LW)

PROCEDURE NUMBER	Sweep Generator		Dial Pointer Setting	Selector Setting	Meter Connection	Adjustment	Remarks
	Connection	Frequency					
1	Thru 0.01 MFD to Q305 Base as small as possible (K312)	455kHz (Modulated)	High end of Dial	Function Selector (Tuner) Band Selector (MW)	TP305	T302 T301	Maximum response at 455kHz Repeat 2 or 3 times

MW RF ALIGNMENT

PROCEDURES NUMBER	Signal Generator		Dial Pointer Setting	Selector Setting	Meter Connection	Adjustment	Remarks
	Connection	Frequency					
1	Radiated Signal as small as possible.	513kHz Modulated	Low end of Dial	Function Selector (Tuner) Band Selector (MW)	Across Output Load (J906 or J907)	Oscillator Coil L203	Volume Control maximum. Adjust for maximum output. Repeat 2 or 3 times.
2	Radiated Signal as small as possible.	1650kHz Modulated	High end of Dial	Same as above	Same as above.	Oscillator Trimmer C214	Same as above
3	Radiated Signal as small as possible.	1400kHz Modulated	1400kHz	Same as above	Same as step 1.	Tuning Trimmer C203	Same as above
4	Radiated Signal as small as possible.	600kHz Modulated	600kHz	Same as above	Same as step 1.	Antenna Coil L904	Same as above

LW RF ALIGNMENT

PROCEDURE NUMBER	Signal Generator		Dial Pointer Setting	Selector Setting	Meter Connection	Adjustment	Remarks
	Connection	Frequency					
1	Radiated Signal as small as possible.	145kHz Modulated	Low end of Dial	Function Selector (Tuner) Band Selector (LW)	Across Output Load (J906 or J907)	Oscillator Coil L204	Volume Control maximum. Adjust for maximum output. Repeat 2 or 3 times.
2	Radiated Signal as small as possible.	380kHz Modulated	High end of Dial	Same as above	Same as above.	Oscillator Trimmer C215	Same as above
3	Radiated Signal as small as possible.	160kHz Modulated	160kHz	Same as above	Same as step 1	Tuning Trimmer C205	Same as above
4	Radiated Signal as small as possible.	340kHz Modulated	340kHz	Same as above	Same as step 1	Antenna Coil L904	Same as above

SW RF ALIGNMENT

PROCEDURE NUMBER	Signal Generator		Dial Pointer Setting	Selector Setting	Meter Connection	Adjustment	Remarks
	Connection	Frequency					
1	AM Signal generator connected to the AM ANT terminal through IEC dummy as small as possible.	5.7MHz Modulated	Low end of Dial	Function Selector (Tuner) Band Selector (SW)	Across Output Load (J906 or J907)	Oscillator Coil L202.	Volume Control maximum Adjust for maximum output. Repeat 2 or 3 times
2	Same as above.	18.5MHz Modulated	High end of Dial	Same as above	Same as above	Oscillator Trimmer C213	Same as above
3	Same as step 1	6.5MHz Modulated	6.5MHz	Same as above	Same as step 1	Tuning Trimmer C201	Same as above
4	Same as step 1	16MHz Modulated	16MHz	Same as above	Same as step 1	Antenna Coil L201.	Same as above

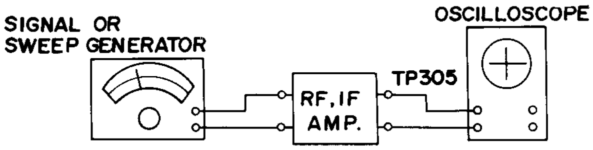

SIGNAL OR
SWEEP GENERATOR
OSCILLOSCOPE
RF, IF
AMP.
TP305

Figure 10 AM IF ALIGNMENT EQUIPMENT CONNECTIONS

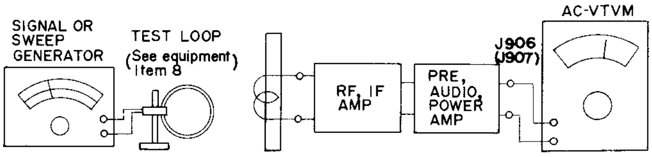

SIGNAL OR
SWEEP
GENERATOR
TEST LOOP
(See equipment Item 8)
RF, IF
AMP
PRE,
AUDIO,
POWER
AMP
J906
(J907)
AC-VTVM

Figure 11 MW/LW RF ALIGNMENT EQUIPMENT CONNECTIONS

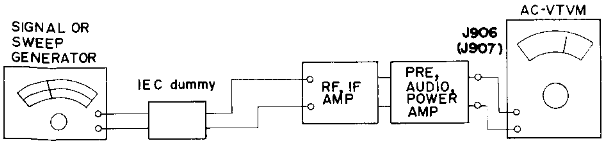
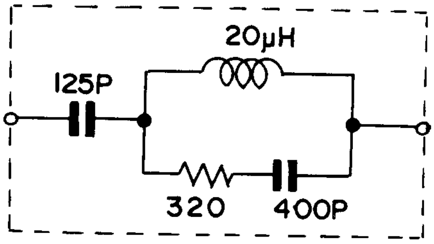

SIGNAL OR
SWEEP
GENERATOR
IEC dummy
RF, IF
AMP
PRE,
AUDIO,
POWER
AMP
J906
(J907)
AC-VTVM

Figure 12 SW RF ALIGNMENT EQUIPMENT CONNECTIONS


20μH
125P
320
400P

IEC Dummy

FM IF, RF, MPX ALIGNMENT

PROCEDURE NO.	Test Stage	Signal or Sweep Generator			Dial Pointer Setting	Band Selector	Meter Connection	Adjustment	Remarks
		Connection	Frequency	Modulation					
1	IF	Detune T303 completely							
2	IF	FM signal generator connected to the FM ANT terminal.	10.7MHz ±500kHz	Unmodulated	High end of dial	Function Selector (Tuner), Band Selector (FM)	TP301 (Oscilloscope)	T101	Set curve at maximum as shown in the Figure 14
3	Radio Detector	FM Sweep TP101	10.7MHz ±500kHz	Unmodulated	Same as above.	Same as above.	TP302 (Oscilloscope)	T303	Top core adjustment; Make the height of two peaks of "S" curve equal. Bottom core adjustment; Make the lineality of "S" curve best.
4	If necessary, repeat step 2 –Step 3.								
5	Band Coverage	FM signal generator connected to the FM ANT terminal through 300 ohm dummy (As small as possible)	87.5MHz	400Hz 30%	Low end of dial	Same as above	Across Output Load (J906 or J907)	L106	To the maximum output point repeat 9 – 10 times.
6			107.9MHz		High end of dial			TC103	
7	Tracking		90MHz		90MHz			L101, L102	To the maximum output point repeat 9 – 10 times.
8			106MHz		106MHz			TC101, TC102	
9	If necessary, repeat step 5 – Stop 8.								
*10	MPX	FM signal generator connected to the FM ANT terminal through 300 ohm dummy.	98MHz	Pilot 19kHz 10%	98MHz	Function Selector (Tuner), Band Selector (FM) STEREO)	IC-401 Pin No.12 No.10 No. 9	L401 L402 L403	To the maximum 38kHz output point repeat 2 – 3 times.
*11	MPX		98MHz	Pilot 19kHz 10%	98MHz	Same as above	TP303 TP304	L404 L405	To the minimum 38kHz output point
*12	MPX		98MHz	Stereo Mod. (1000Hz) L only	98MHz	Same as above	Across ChL output load (J906)	L402	Make the L channel output level maximum.
*13	MPX		98MHz	Stereo Mod. (1000Hz) L only	98MHz	Same as above	Across ChR output load (J907)	R403	Make the L to R crosstalk minimum.

* Output level of FM Signal Generator which is modulated by a FM Stereo Signal Generator shall be 1000μV (60dB)

THE INSTRUCTION OF FREQUENCY ADJUSTMENT

In order to comply with FTZ rule: Nr 358 S757, please fix the low end dial frequency on FM(UKW) band, by adjusting oscillation coil (L106) as shown in Figure 9. Adjustment is made to get a peak reception of a generated standard signal at the frequency of 87.5 MHz.

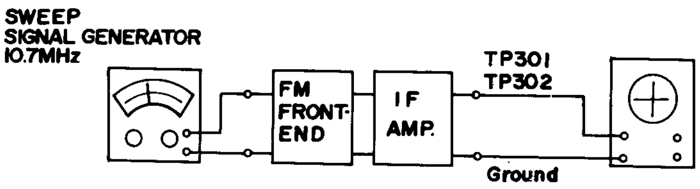

SWEEP
SIGNAL GENERATOR
10.7MHz
FM FRONT-END
IF AMP.
TP301
TP302
Ground

Figure 13 FM IF ALIGNMENT EQUIPMENT CONNECTIONS

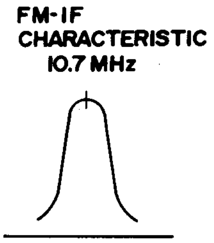

FM-IF
CHARACTERISTIC
10.7 MHz

Figure 14

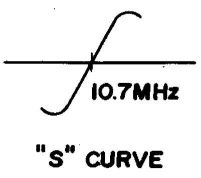

10.7MHz
"S" CURVE

Figure 15

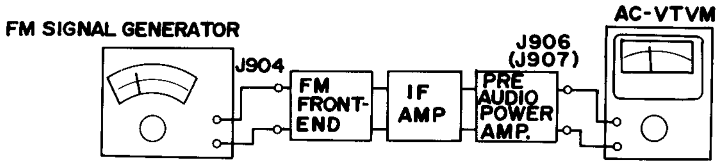

FM SIGNAL GENERATOR
J904
FM FRONT-END
IF AMP
J906
(J907)
PRE AUDIO POWER AMP.
AC-VTVM

Figure 16 FM RF ALIGNMENT EQUIPMENT CONNECTIONS

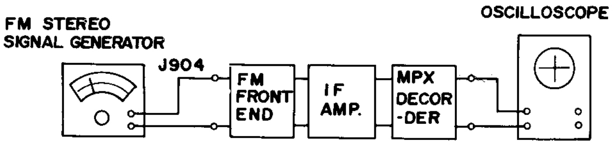

FM STEREO
SIGNAL GENERATOR
J904
FM FRONT END
IF AMP.
MPX DECOR -DER
OSCILLOSCOPE

Figure 17 FM STEREO ALIGNMENT EQUIPMENT CONNECTIONS

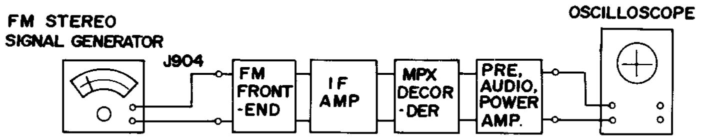

FM STEREO
SIGNAL GENERATOR
J904
FM FRONT -END
IF AMP
MPX DECOR -DER
PRE, AUDIO, POWER AMP.
OSCILLOSCOPE

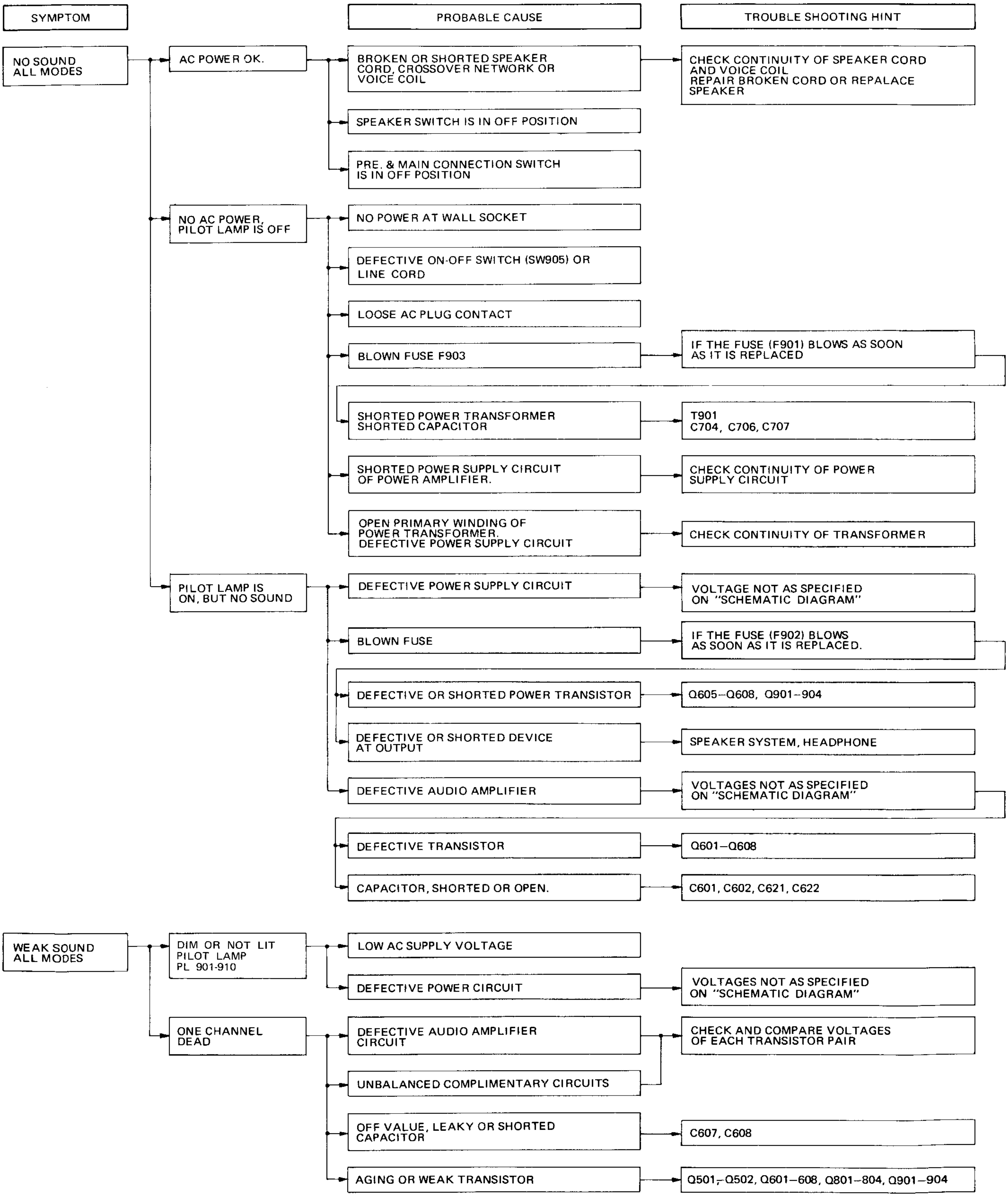
Figure 18 FM STEREO ALIGNMENT EQUIPMENT CONNECTIONS

AF ALIGNMENT

PROCEDURE NUMBER	Alignment	Meter	Output Indicator	Setting	Adjustment	Remarks
1	Center Voltage	100V DC Voltmeter	Voltmeter is connected between Collector of Q903 (or Q904) and ground	Volume minimum. Other knobs are in normal position.	R613 (or R614)	½ of collector voltage of Q901 (or Q902)
2	Idle Current	30mV DC Voltmeter	Voltmeter is connected between Emitter of Q903 (or Q904) and ground	Same as above	R623 (or R624)	7mV

TROUBLE SHOOTING GUIDE (1)

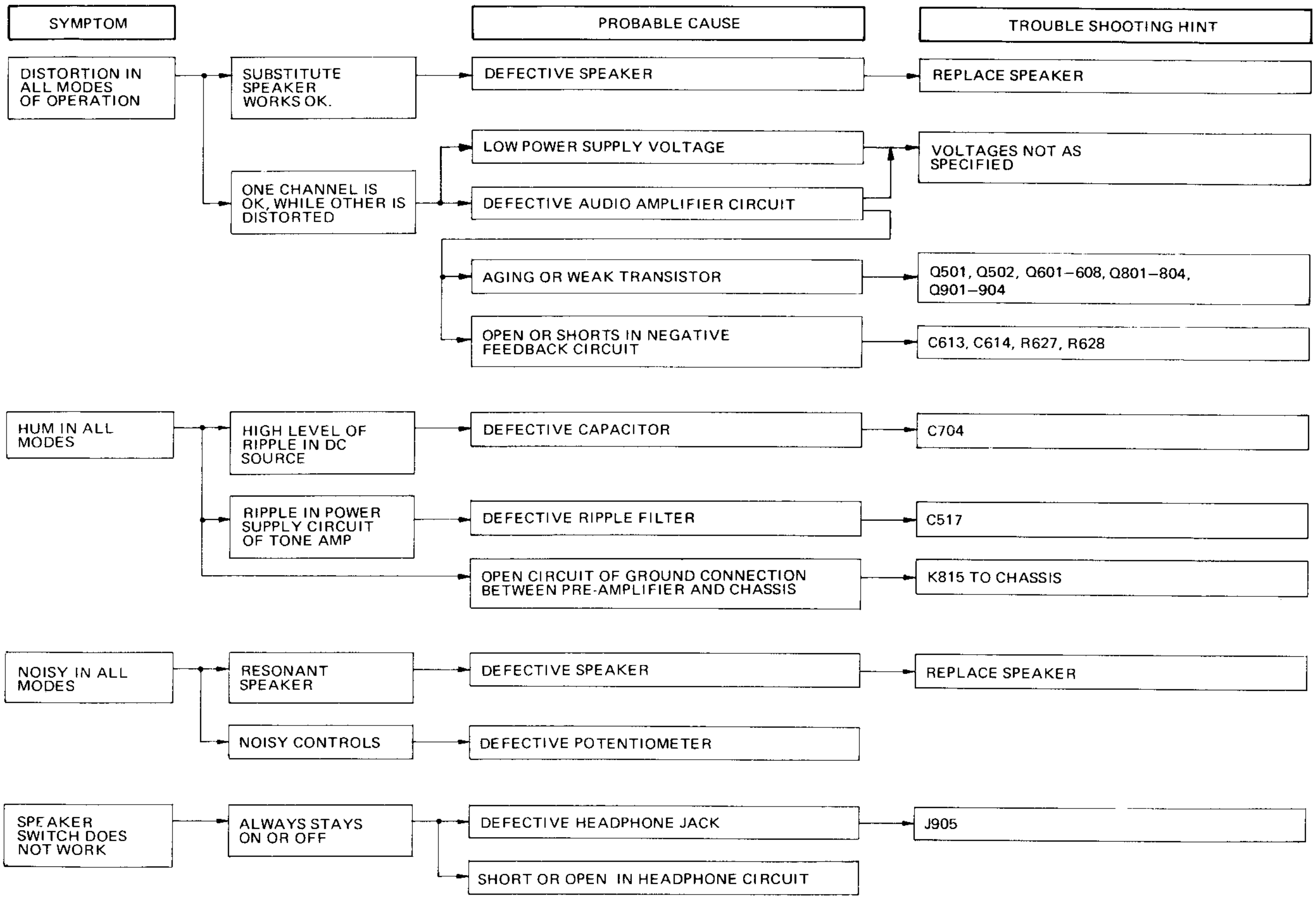
ALL OPERATIONAL MODES (1)



SYMPTOM		PROBABLE CAUSE	TROUBLE SHOOTING HINT
NO SOUND ALL MODES	AC POWER OK.	BROKEN OR SHORTED SPEAKER CORD, CROSSOVER NETWORK OR VOICE COIL	CHECK CONTINUITY OF SPEAKER CORD AND VOICE COIL REPAIR BROKEN CORD OR REPALACE SPEAKER
		SPEAKER SWITCH IS IN OFF POSITION	
		PRE. & MAIN CONNECTION SWITCH IS IN OFF POSITION	
	NO AC POWER, PILOT LAMP IS OFF	NO POWER AT WALL SOCKET	
		DEFECTIVE ON-OFF SWITCH (SW905) OR LINE CORD	
		LOOSE AC PLUG CONTACT	
		BLOWN FUSE F903	IF THE FUSE (F901) BLOWS AS SOON AS IT IS REPLACED
		SHORTED POWER TRANSFORMER SHORTED CAPACITOR	T901 C704, C706, C707
		SHORTED POWER SUPPLY CIRCUIT OF POWER AMPLIFIER.	CHECK CONTINUITY OF POWER SUPPLY CIRCUIT
		OPEN PRIMARY WINDING OF POWER TRANSFORMER. DEFECTIVE POWER SUPPLY CIRCUIT	CHECK CONTINUITY OF TRANSFORMER
	PILOT LAMP IS ON, BUT NO SOUND	DEFECTIVE POWER SUPPLY CIRCUIT	VOLTAGE NOT AS SPECIFIED ON "SCHEMATIC DIAGRAM"
		BLOWN FUSE	IF THE FUSE (F902) BLOWS AS SOON AS IT IS REPLACED.
		DEFECTIVE OR SHORTED POWER TRANSISTOR	Q605–Q608, Q901–904
		DEFECTIVE OR SHORTED DEVICE AT OUTPUT	SPEAKER SYSTEM, HEADPHONE
		DEFECTIVE AUDIO AMPLIFIER	VOLTAGES NOT AS SPECIFIED ON "SCHEMATIC DIAGRAM"
		DEFECTIVE TRANSISTOR	Q601–Q608
		CAPACITOR, SHORTED OR OPEN.	C601, C602, C621, C622
WEAK SOUND ALL MODES	DIM OR NOT LIT PILOT LAMP PL 901-910	LOW AC SUPPLY VOLTAGE	
		DEFECTIVE POWER CIRCUIT	VOLTAGES NOT AS SPECIFIED ON "SCHEMATIC DIAGRAM"
	ONE CHANNEL DEAD	DEFECTIVE AUDIO AMPLIFIER CIRCUIT	CHECK AND COMPARE VOLTAGES OF EACH TRANSISTOR PAIR
		UNBALANCED COMPLIMENTARY CIRCUITS	CHECK AND COMPARE VOLTAGES OF EACH TRANSISTOR PAIR
		OFF VALUE, LEAKY OR SHORTED CAPACITOR	C607, C608
		AGING OR WEAK TRANSISTOR	Q501–Q502, Q601–608, Q801–804, Q901–904

TROUBLE SHOOTING GUIDE (2)

ALL OPERATIONAL MODES (2)


SYMPTOM
PROBABLE CAUSE
TROUBLE SHOOTING HINT
DISTORTION IN ALL MODES OF OPERATION
SUBSTITUTE SPEAKER WORKS OK.
DEFECTIVE SPEAKER
REPLACE SPEAKER
ONE CHANNEL IS OK, WHILE OTHER IS DISTORTED
LOW POWER SUPPLY VOLTAGE
VOLTAGES NOT AS SPECIFIED
DEFECTIVE AUDIO AMPLIFIER CIRCUIT
AGING OR WEAK TRANSISTOR
Q501, Q502, Q601–608, Q801–804, Q901–904
OPEN OR SHORTS IN NEGATIVE FEEDBACK CIRCUIT
C613, C614, R627, R628
HUM IN ALL MODES
HIGH LEVEL OF RIPPLE IN DC SOURCE
DEFECTIVE CAPACITOR
C704
RIPPLE IN POWER SUPPLY CIRCUIT OF TONE AMP
DEFECTIVE RIPPLE FILTER
C517
OPEN CIRCUIT OF GROUND CONNECTION BETWEEN PRE-AMPLIFIER AND CHASSIS
K815 TO CHASSIS
NOISY IN ALL MODES
RESONANT SPEAKER
DEFECTIVE SPEAKER
REPLACE SPEAKER
NOISY CONTROLS
DEFECTIVE POTENTIOMETER
SPEAKER SWITCH DOES NOT WORK
ALWAYS STAYS ON OR OFF
DEFECTIVE HEADPHONE JACK
J905
SHORT OR OPEN IN HEADPHONE CIRCUIT

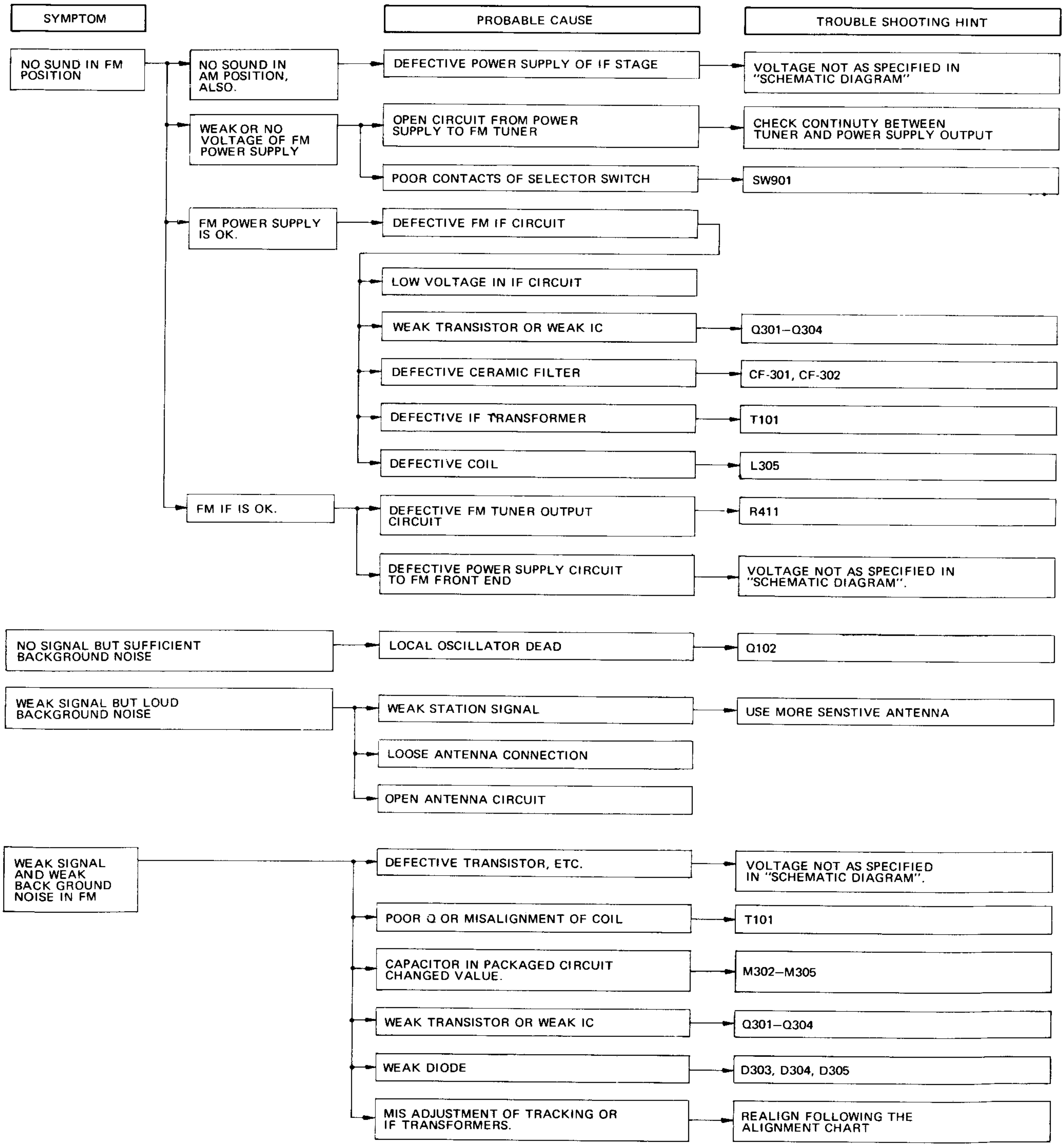
TROUBLE SHOOTING GUIDE (3)

AM RECEPTION

SYMPTOM		PROBABLE CAUSE	TROUBLE SHOOTING HINT
NO SOUND	NO SOUND ALL MODES SECTION		SEE "NO SOUND" ALL MODES
	NO SOUND AM ONLY	NO SUPPLY VOLTAGE TO AM CIRCUIT	CHECK POWER SUPPLY
		DEFECTIVE AM CIRCUIT COMPONENT	VOLTAGES NOT AS SPECIFIED ON "SCHEMATIC DIAGRAM"
		DEFECTIVE TRANSISTOR	Q201, Q302, Q303, Q305, Q306
		DEFECTIVE I.F. TRANSFORMER	T301, T302
		DETECTER DIODE DEFECTIVE	D302
		IMPROPER CONTACTS ON SELECTOR SWITCH	SW901
		DEFECTIVE CAPACITOR	
		DEFECTIVE RESISTOR	
		OSCILLATOR STAGE INOPERATIVE	CHECK Q201, L202, C203, C204,
WEAK SOUND		WEAK INCOMING STATION SIGNAL	SELECT THE DIRECTION OR LOCATION OF ANTENNA FOR BEST RECEPTION
		DEFECTIVE AM CIRCUIT COMPONENT	VOLTAGES NOT AS SPECIFIED IN "SCHEMATIC DIAGRAM"
		Q-FACTOR OF I.F. TRANSFORMER IS TOO LOW	T301, T302,
		CAPACITORS OFF VALUE	C305, C317, C322, M303, M304
		DEFECTIVE RESISTOR	
		MISALIGNMENT OF I.F. TRANSFORMER	T301
	INTERMEDIATE FREQUENCY IS OK	ERROR IN TRACKING	L201, L904, C201, C203, C205
		VOLTAGE DROP IN LOCAL OSCILLATOR	Q202, L202, L203, C204, C213, C214, C215
DISTORTION	AMPLIFIER IS OK	DETECTOR DIODE, DEFECTIVE OR WEAK	D302
		CAPACITORS OFF VALVE	C308, C309
	DISTORTION WHEN RECEIVING STRONG LOCAL STATIONS.	DEFECTIVE AGC CIRCUIT	D313, R311, R312, R313
		OVERLOAD AT ANTENNA INPUT	SELECT THE DIRECTION OR LOCATION OF ANTENNA FOR BEST RECEIVING
NOISY	AMPLIFIER IS OK	DEFECTIVE AM SECTION	
		DEFECTIVE TRANSISTOR	Q201, Q302, Q303, Q305, Q306,
		POOR OR DIRTY CONTACTS OF SELECTOR SWITCH	SW901
		BROKEN LEAD IN ANTENNA CIRCUIT OR SHORTED TUNING GANG	C201, C203, C205, L201, L904

TROUBLE SHOOTING GUIDE (4)

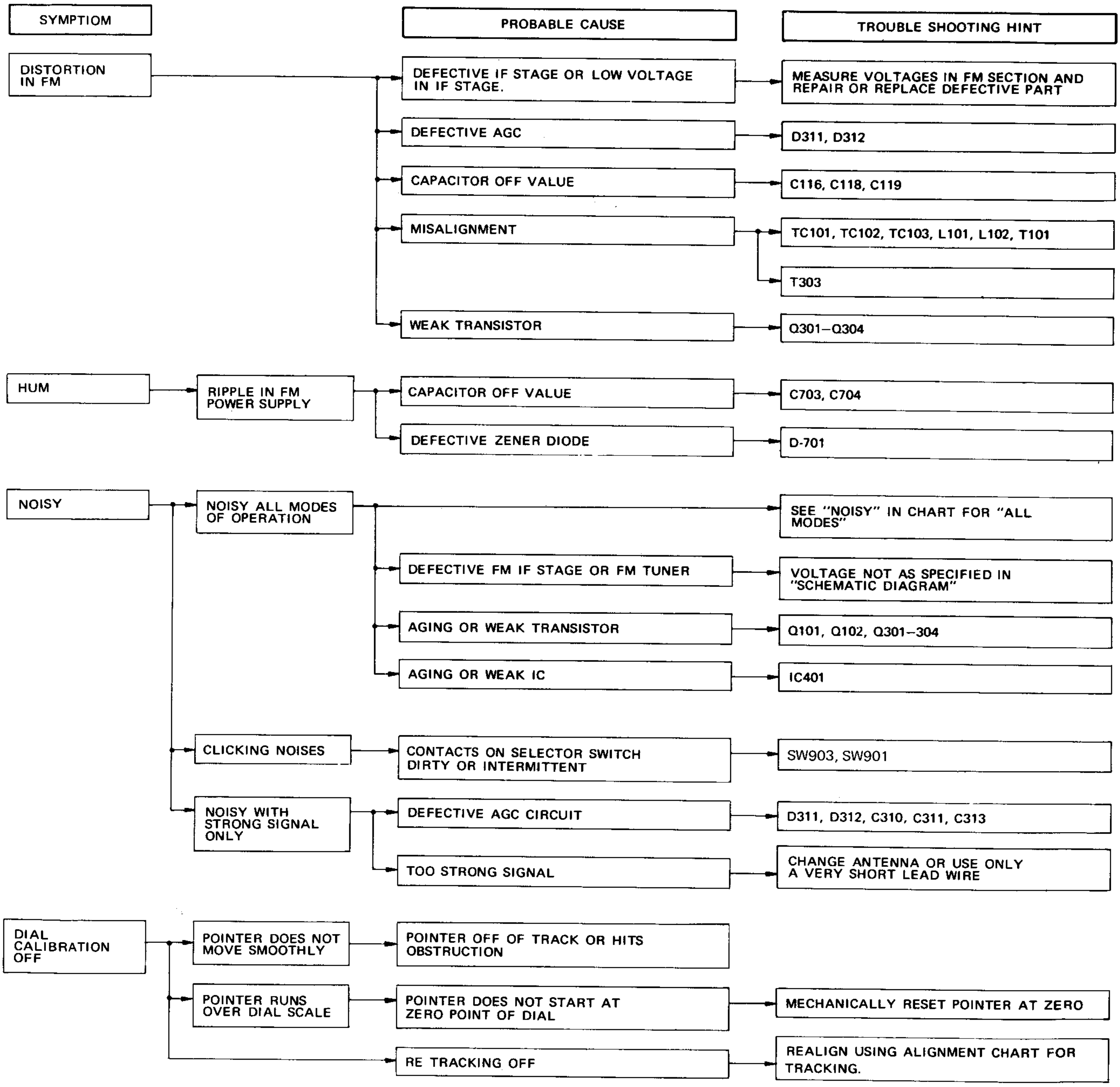
FM RECEPTION (1)



SYMPTOM		PROBABLE CAUSE	TROUBLE SHOOTING HINT
NO SUND IN FM POSITION	NO SOUND IN AM POSITION, ALSO.	DEFECTIVE POWER SUPPLY OF IF STAGE	VOLTAGE NOT AS SPECIFIED IN "SCHEMATIC DIAGRAM"
	WEAK OR NO VOLTAGE OF FM POWER SUPPLY	OPEN CIRCUIT FROM POWER SUPPLY TO FM TUNER	CHECK CONTINUTY BETWEEN TUNER AND POWER SUPPLY OUTPUT
		POOR CONTACTS OF SELECTOR SWITCH	SW901
	FM POWER SUPPLY IS OK.	DEFECTIVE FM IF CIRCUIT	
		LOW VOLTAGE IN IF CIRCUIT	
		WEAK TRANSISTOR OR WEAK IC	Q301–Q304
		DEFECTIVE CERAMIC FILTER	CF-301, CF-302
		DEFECTIVE IF TRANSFORMER	T101
		DEFECTIVE COIL	L305
	FM IF IS OK.	DEFECTIVE FM TUNER OUTPUT CIRCUIT	R411
		DEFECTIVE POWER SUPPLY CIRCUIT TO FM FRONT END	VOLTAGE NOT AS SPECIFIED IN "SCHEMATIC DIAGRAM".
NO SIGNAL BUT SUFFICIENT BACKGROUND NOISE		LOCAL OSCILLATOR DEAD	Q102
WEAK SIGNAL BUT LOUD BACKGROUND NOISE		WEAK STATION SIGNAL	USE MORE SENSTIVE ANTENNA
		LOOSE ANTENNA CONNECTION	
		OPEN ANTENNA CIRCUIT	
WEAK SIGNAL AND WEAK BACK GROUND NOISE IN FM		DEFECTIVE TRANSISTOR, ETC.	VOLTAGE NOT AS SPECIFIED IN "SCHEMATIC DIAGRAM".
		POOR Q OR MISALIGNMENT OF COIL	T101
		CAPACITOR IN PACKAGED CIRCUIT CHANGED VALUE.	M302–M305
		WEAK TRANSISTOR OR WEAK IC	Q301–Q304
		WEAK DIODE	D303, D304, D305
		MIS ADJUSTMENT OF TRACKING OR IF TRANSFORMERS.	REALIGN FOLLOWING THE ALIGNMENT CHART

TROUBLE SHOOTING GUIDE (5)

FM RECEPTION (2)



SYMPTIOM		PROBABLE CAUSE	TROUBLE SHOOTING HINT
DISTORTION IN FM		DEFECTIVE IF STAGE OR LOW VOLTAGE IN IF STAGE.	MEASURE VOLTAGES IN FM SECTION AND REPAIR OR REPLACE DEFECTIVE PART
		DEFECTIVE AGC	D311, D312
		CAPACITOR OFF VALUE	C116, C118, C119
		MISALIGNMENT	TC101, TC102, TC103, L101, L102, T101 T303
		WEAK TRANSISTOR	Q301–Q304
HUM	RIPPLE IN FM POWER SUPPLY	CAPACITOR OFF VALUE	C703, C704
		DEFECTIVE ZENER DIODE	D-701
NOISY	NOISY ALL MODES OF OPERATION		SEE "NOISY" IN CHART FOR "ALL MODES"
		DEFECTIVE FM IF STAGE OR FM TUNER	VOLTAGE NOT AS SPECIFIED IN "SCHEMATIC DIAGRAM"
		AGING OR WEAK TRANSISTOR	Q101, Q102, Q301–304
		AGING OR WEAK IC	IC401
	CLICKING NOISES	CONTACTS ON SELECTOR SWITCH DIRTY OR INTERMITTENT	SW903, SW901
	NOISY WITH STRONG SIGNAL ONLY	DEFECTIVE AGC CIRCUIT	D311, D312, C310, C311, C313
		TOO STRONG SIGNAL	CHANGE ANTENNA OR USE ONLY A VERY SHORT LEAD WIRE
DIAL CALIBRATION OFF	POINTER DOES NOT MOVE SMOOTHLY	POINTER OFF OF TRACK OR HITS OBSTRUCTION	
	POINTER RUNS OVER DIAL SCALE	POINTER DOES NOT START AT ZERO POINT OF DIAL	MECHANICALLY RESET POINTER AT ZERO
		RE TRACKING OFF	REALIGN USING ALIGNMENT CHART FOR TRACKING.

TROUBLE SHOOTING GUIDE (6)

FM MPX RECEPTION

SYMPTOM		PROBABLE CAUSE	TROUBLE SHOOTING HINT
NO STEREO SEPARATION	STEREO LIGHT OPERATES NORMALLY	COMPONENTS IN ONE CHANNEL PHYSICALLY TOUCHING PARTS FOR OTHER CHANNEL IN TONE CIRCUIT, MAIN AMP OR MAX CIRCUIT	
	STEREO LIGHT DOES NOT LIGHT WHEN RECEIVING STEREO SIGNAL	AGING OR WEAK IC	IC401
		AGING OR WEAK COIL	L401–405
DISTORTION		WEAK OR DEFECTIVE IC	IC 401
POOR SEPARATION	STEREO LIGHT DOES NOT OPERATE	DEFECTIVE DIODE	D309, D314
	STEREO LIGHT OPERATES NORMALLY	DRIFT OF MPX COILS	REALIGN FOLLOWING THE ALIGNMENT CHART
STEREO LIGHT DOES NOT OPERATE	MPX AMPLIFIER CHECKS OK	WEAK TRANSISTOR IN INDICATOR CIRCUIT	Q701
		DEFECTIVE POWER CIRCUIT TO STEREO LIGHT	

USING WITH EXTERNAL INPUTS OR OUTPUTS (PHONO, TAPE, ETC.)

SYMPTOM		PROBABLE CAUSE	TROUBLE SHOOTING HINT
NO SOUND	UNIT OPERATES PROPERLY ON AM OR FM	INPUT SOURCE DEFECTIVE	SWITCH INPUT SOURCES TO CHECK
		LOOSE CONTACT ON SELECTOR SWITCH	SW903
		LOOSE CONTACTS OF INPUT TERMINAL, DIN SOCKET	
		BROKEN LEAD BETWEEN PRINTED CIRCUIT BOARD AND TERMINALS	CHECK AND REPAIR
TAPE PLAY DOES NOT WORK	AMPLIFIER IS OK	TAPE RECORDER DEFECTIVE	
		LOOSE CONTACT OF OUTPUT DIN SOCKET	

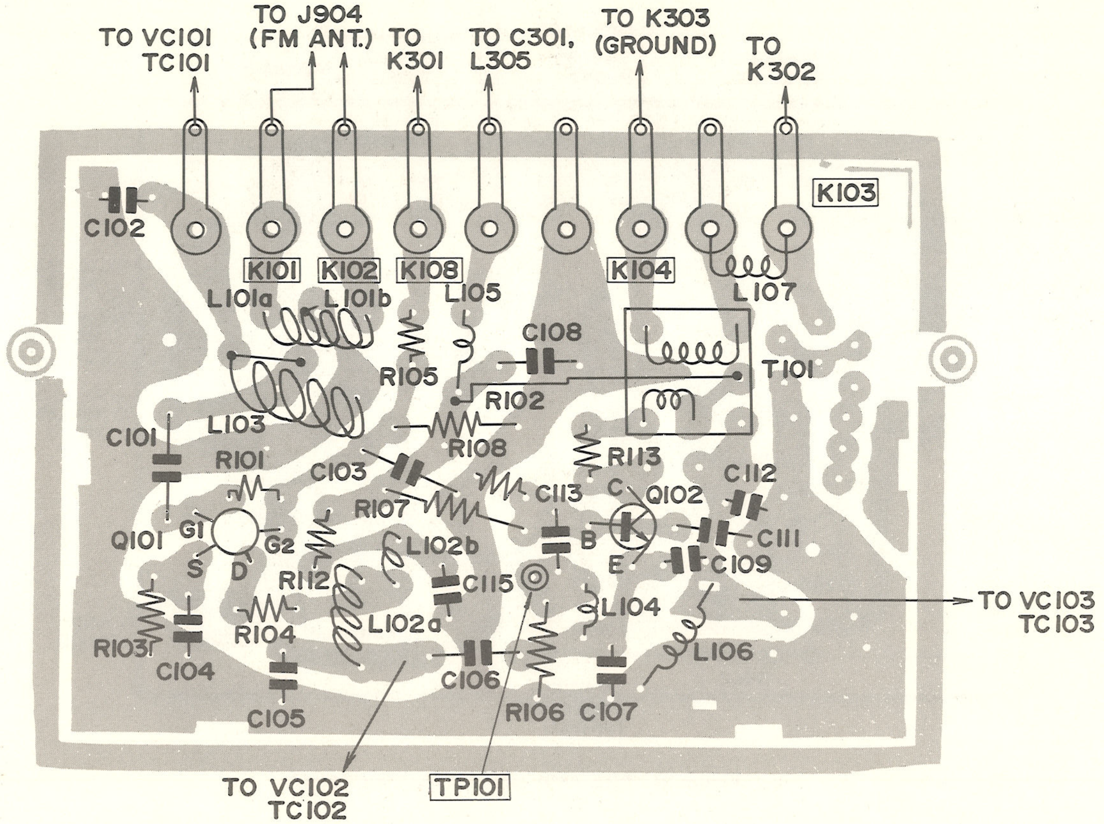

TO VC101 TC101
TO J904 (FM ANT.)
TO K301
TO C301, L305
TO K303 (GROUND)
TO K302
K103
C102
K101
K102
K108
K104
L101a
L101b
L105
L107
C108
R105
R102
T101
L103
R108
C101
R101
R113
C103
C112
R107
C113
Q102
Q101
G1
G2
S
D
B
C
E
C111
R112
L102b
C115
C109
TO VC103 TC103
R103
R104
L102a
L104
L106
C104
C105
C106
R106
C107
TO VC102 TC102
TP101

Figure 19 FM TUNER BOARD WIRING SIDE

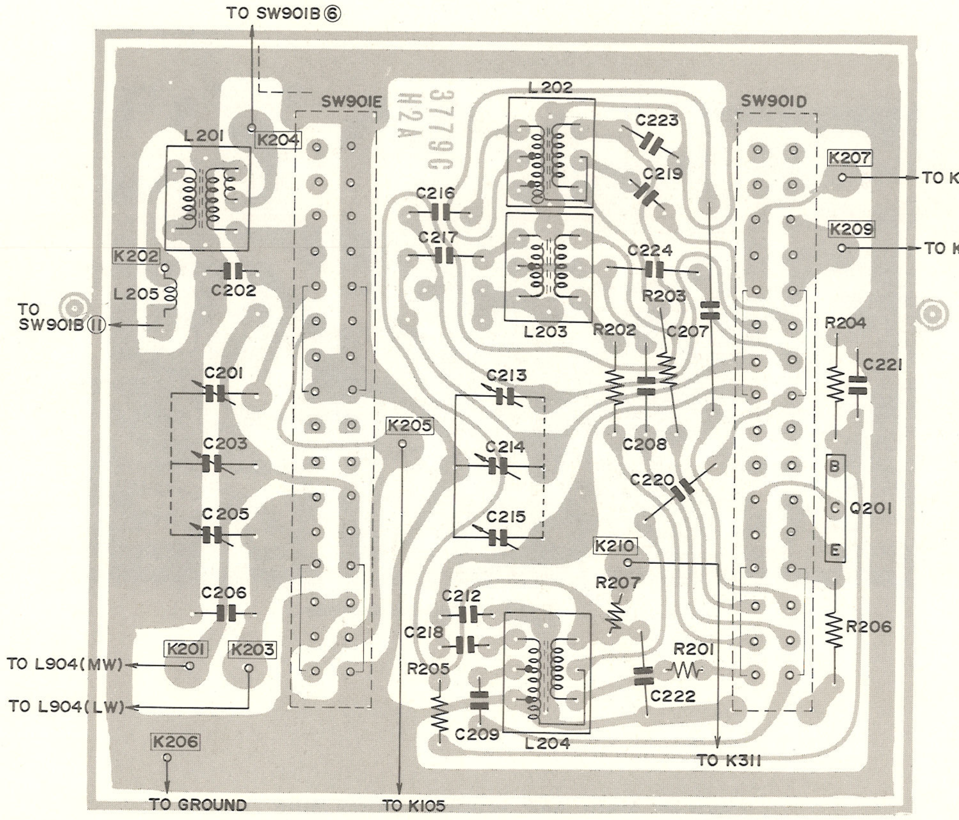

TO SW901B ⑥
SW901E
3779C H2A
L202
SW901D
L201
K204
C223
C216
C219
K207
TO K106
C217
K209
TO K307
K202
C224
L205
C202
R203
TO SW901B ⑪
L203
R202
C207
R204
C221
C201
C213
C208
C203
C214
K205
B
C
Q201
E
C205
C215
C220
K210
C206
C212
R207
C218
R206
K201
K203
R201
R205
TO L904(MW)
TO L904(LW)
C222
C209
L204
K206
TO GROUND
TO K105
TO K311

Figure 20 AM RF BOARD WIRING SIDE

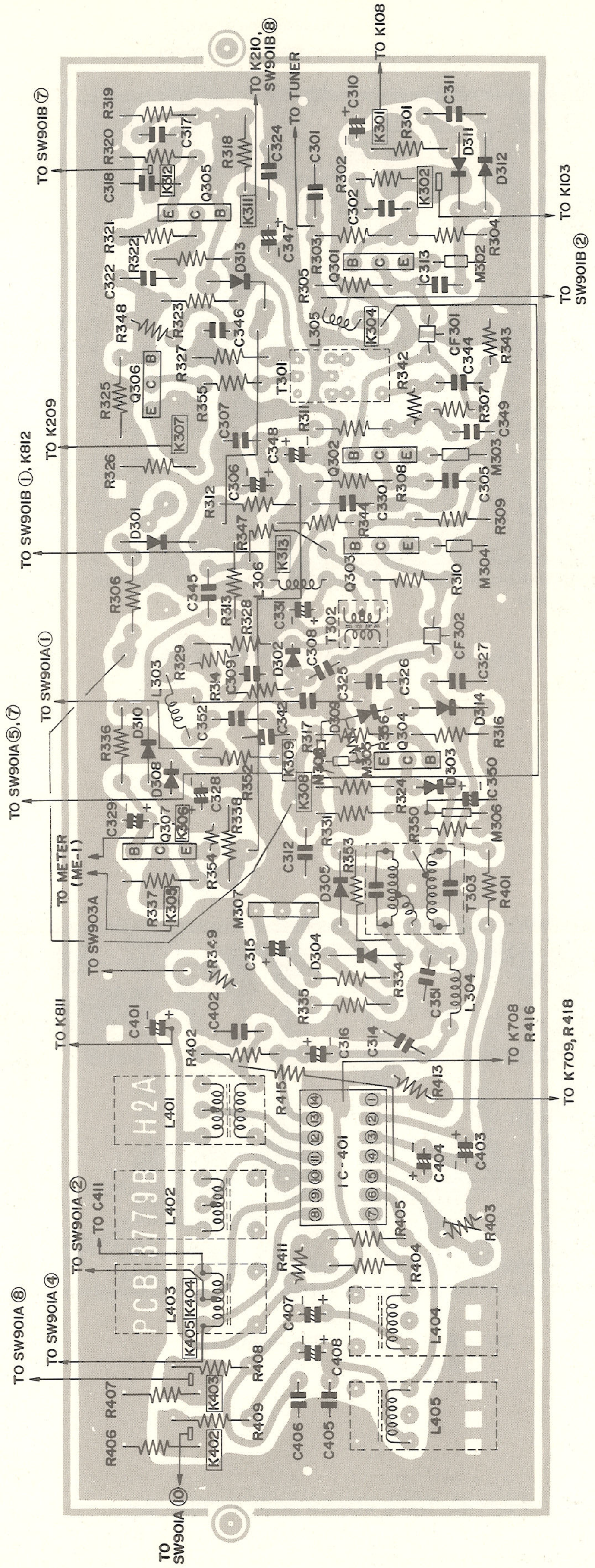

TO SW901B ⑦
TO K210, SW901B ⑧
TO TUNER
TO K108
TO K103
TO SW901B ②
TO SW901B ①, K812
TO K209
TO SW901A ①
TO SW901A ⑤, ⑦
TO METER (ME-1)
TO SW903A
TO K811
TO K708 R416
TO K709, R418
TO SW901A ② TO C411
TO SW901A ⑧
TO SW901A ④
TO SW901A ⑩
IC-401
PCB 3779B H2A

Figure 21 IF/MPX BOARD WIRING SIDE

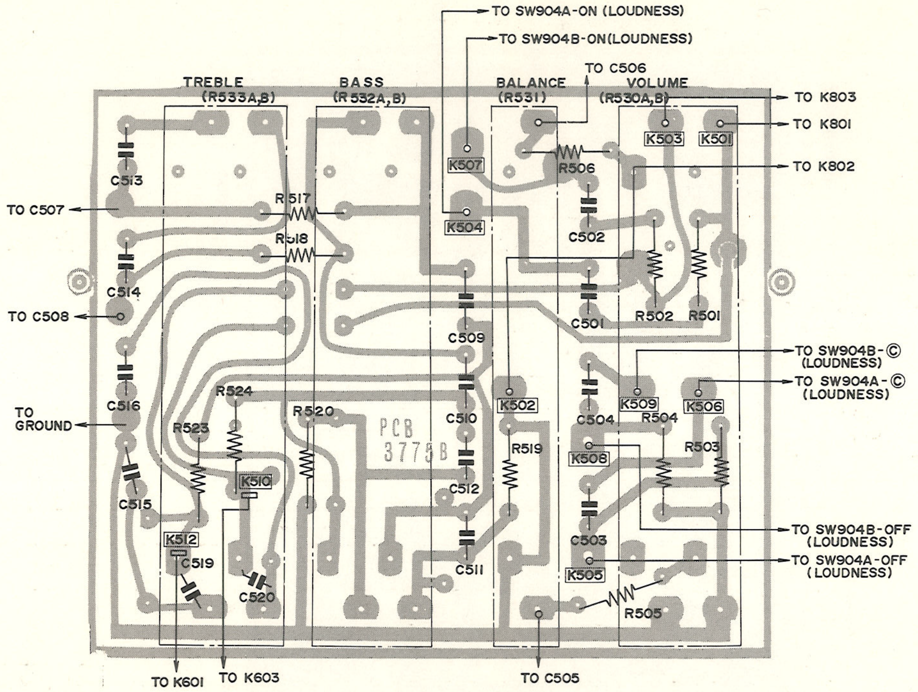

TO SW904A-ON (LOUDNESS)
TO SW904B-ON(LOUDNESS)
TO C506
TREBLE (R533A,B)
BASS (R532A,B)
BALANCE (R531)
VOLUME (R530A,B)
TO K803
TO K801
TO K802
K507
K504
K503
K501
R506
C502
C513
TO C507
R517
R518
C514
TO C508
C509
C501
R502
R501
TO SW904B-© (LOUDNESS)
TO SW904A-© (LOUDNESS)
C516
TO GROUND
R524
R523
R520
PCB 3775B
C510
K502
R519
C504
K509
R504
K506
K508
R503
K510
C512
C515
K512
C519
C520
C511
C503
K505
R505
TO SW904B-OFF (LOUDNESS)
TO SW904A-OFF (LOUDNESS)
TO K601
TO K603
TO C505

Figure 22 TONE BOARD WIRING SIDE (A)

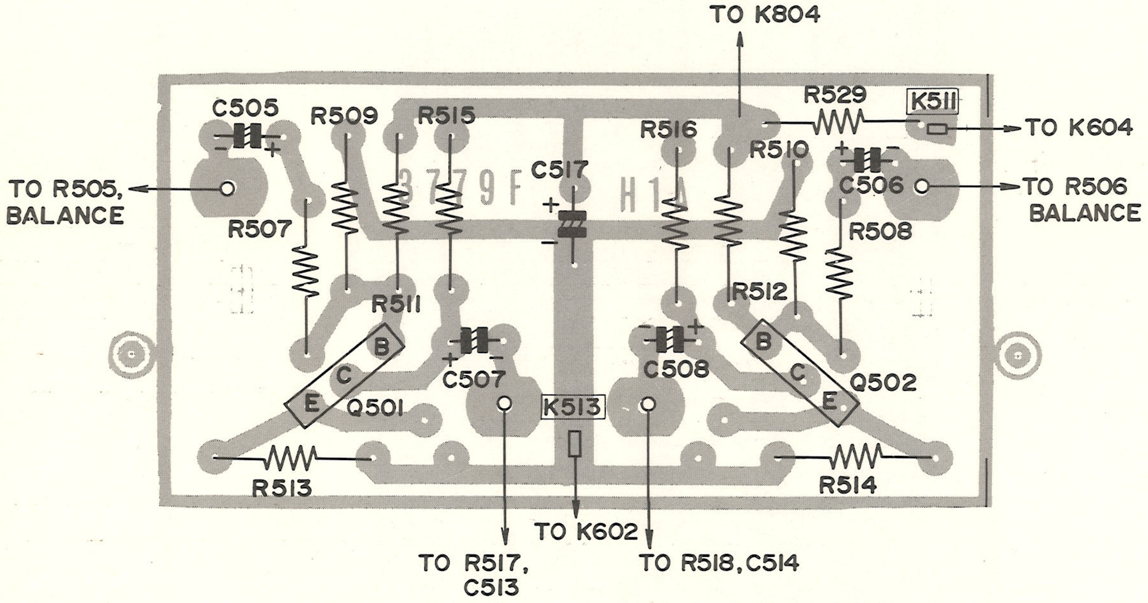

TO K804
C505
R509
R515
R529
K511
TO K604
R516
R510
C517
C506
TO R505, BALANCE
TO R506 BALANCE
3779F
H1A
R507
R508
R511
R512
C507
C508
B
C
E
Q501
Q502
K513
R513
R514
TO K602
TO R517, C513
TO R518, C514

Figure 23 TONE BOARD WIRING SIDE (2)

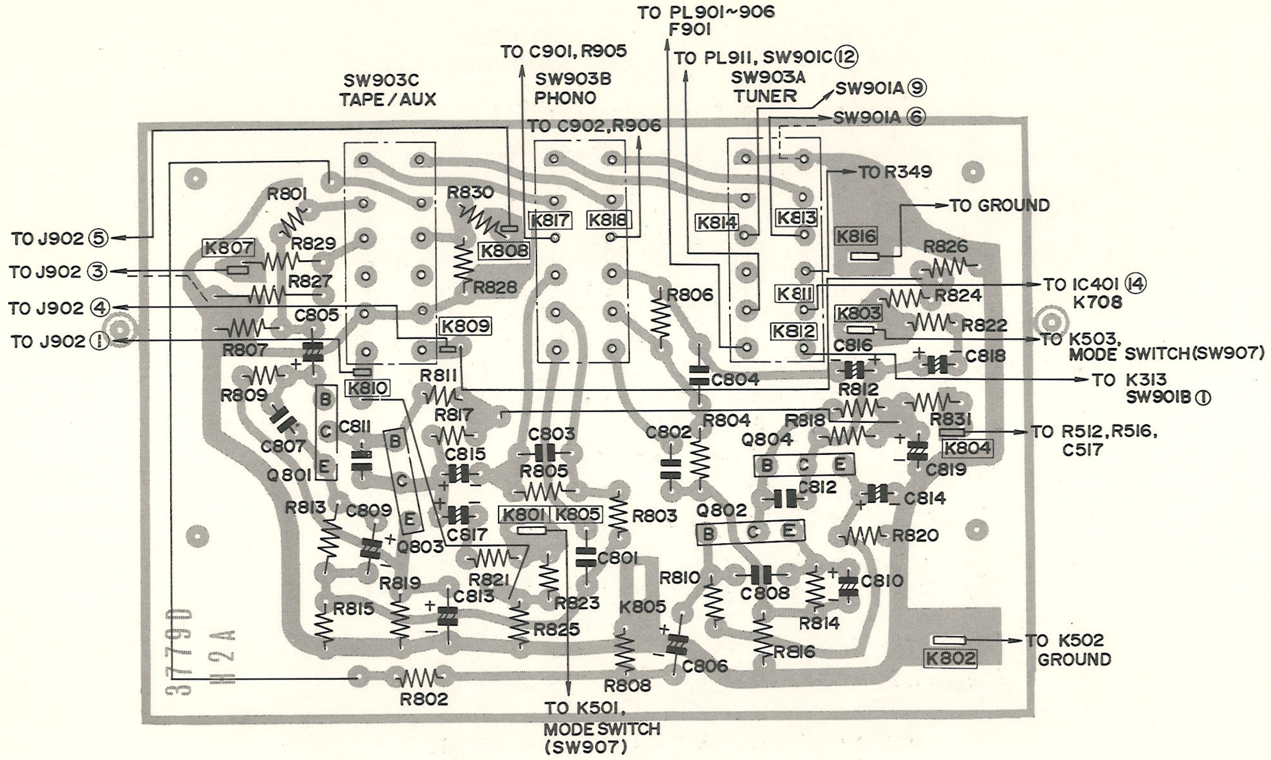

TO PL901~906 F901
TO C901, R905
TO PL911, SW901C⑫
SW903C TAPE/AUX
SW903B PHONO
SW903A TUNER
SW901A ⑨
SW901A ⑥
TO C902, R906
TO R349
TO GROUND
TO J902 ⑤
TO J902 ③
TO J902 ④
TO J902 ①
R801
R830
K817
K818
K814
K813
K816
K807
R829
K808
R827
R828
R826
R806
K811
R824
TO IC401 ⑭ K708
C805
K809
K803
R822
K812
TO K503, MODE SWITCH (SW907)
R807
C816
C818
C804
TO K313 SW901B ①
R809
K810
R811
R812
R817
R804
R818
R831
TO R512, R516, C517
C807
C811
C803
C802
Q804
K804
C815
R805
C819
Q801
C812
C814
R813
C809
K801
K805
R803
Q802
Q803
C817
C801
R820
R819
R821
R823
R810
C808
C810
R815
C813
R825
K805
R814
TO K502 GROUND
R816
K802
C806
R802
R808
3779D
H2A
TO K501, MODE SWITCH (SW907)

Figure 24 PRE-AMP BOARD WIRING SIDE

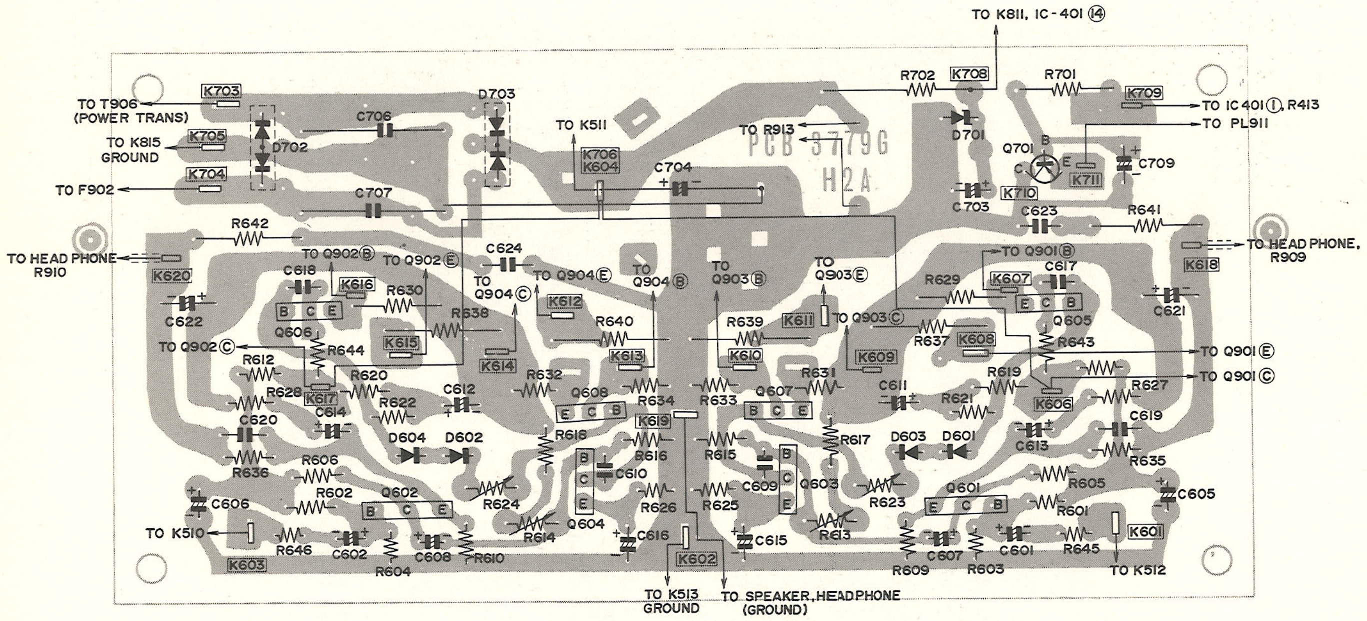
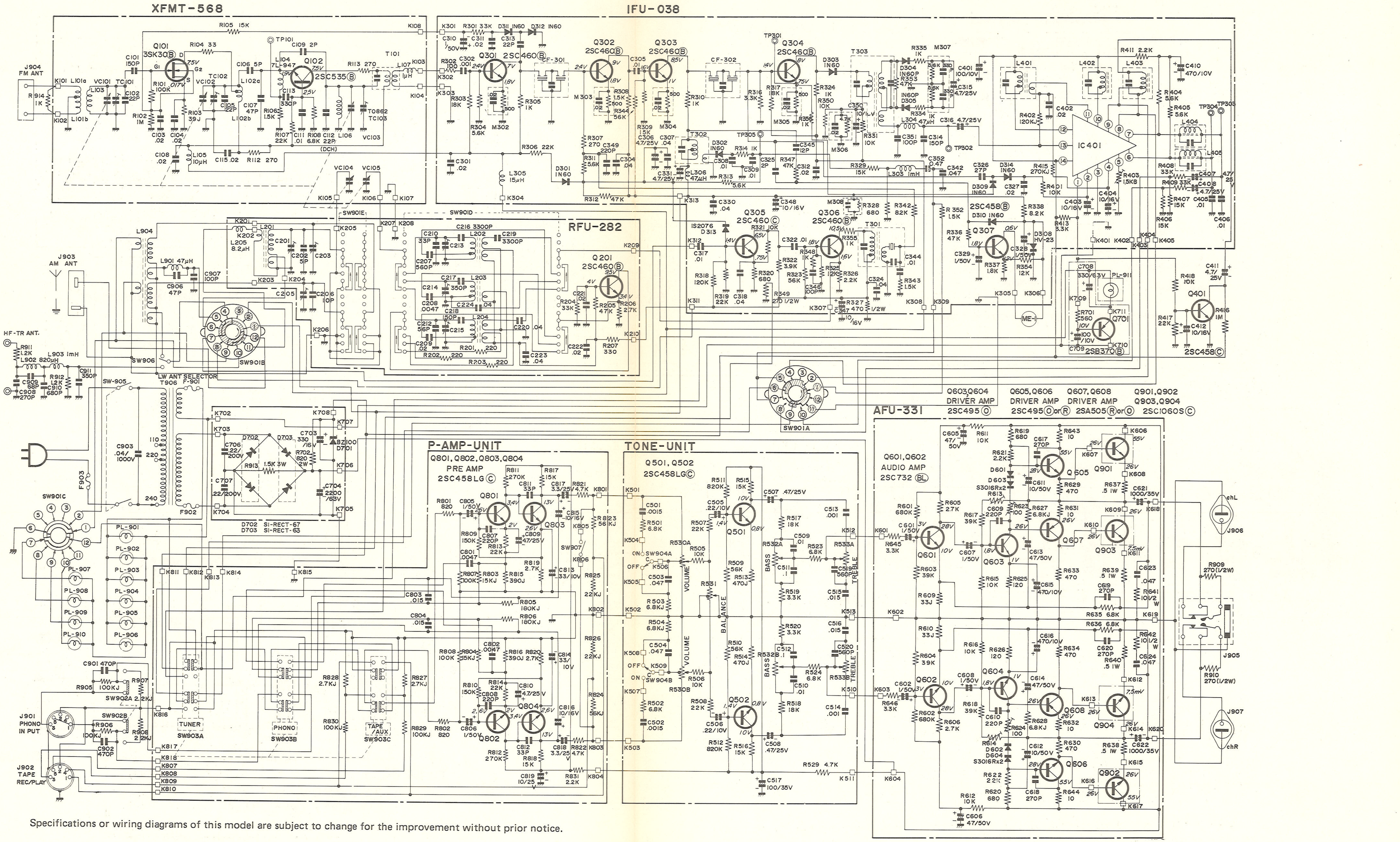

TO K811, IC-401 ⑭
R702
K708
R701
K709
TO IC401 ①, R413
TO PL911
K703
TO T906 (POWER TRANS)
D703
C706
TO K511
TO R913
PCB 3779G H2A
D701
K705
TO K815 GROUND
D702
K706 K604
C704
Q701
C709
K711
K704
TO F902
C707
K710
C703
C623
R641
R642
TO HEAD PHONE R910
TO HEAD PHONE, R909
K620
K618
TO Q902 Ⓑ
TO Q902 Ⓔ
C624
TO Q901 Ⓑ
C617
C618
K616
R630
TO Q904 Ⓒ
TO Q904 Ⓔ
TO Q904 Ⓑ
TO Q903 Ⓑ
TO Q903 Ⓔ
R629
K607
C621
C622
Q606
R638
K612
R640
R639
K611
TO Q903 Ⓒ
Q605
K615
R644
K614
K613
K610
K609
R637
K608
R643
TO Q902 Ⓒ
TO Q901 Ⓔ
TO Q901 Ⓒ
R612
R620
R632
R631
R619
R628
K617
R622
C612
Q608
R634
R633
Q607
C611
R621
K606
R627
C614
C620
K619
C619
R618
R616
R615
R617
D604
D602
D603
D601
C613
R636
R606
C610
C609
R635
R602
Q602
R624
R626
R625
Q603
R623
Q601
R605
C605
C606
R601
TO K510
R646
C602
R604
C608
R610
R614
Q604
C616
C615
R613
R609
C607
R603
C601
R645
K601
TO K512
K603
K602
TO K513 GROUND
TO SPEAKER, HEADPHONE (GROUND)

Figure 25 MAIN AMP BOARD WIRING SIDE


XFMT-568
IFU-038
RFU-282
P-AMP-UNIT
TONE-UNIT
AFU-331
J904 FM ANT
J903 AM ANT
HF-TR ANT.
LW ANT SELECTOR
Q101 3SK30(B)
Q102 2SC535(B)
Q301 2SC460(B)
Q302 2SC460(B)
Q303 2SC460(B)
Q304 2SC460(B)
Q305 2SC460(C)
Q306 2SC460(B)
Q307 2SC458(B)
Q201 2SC460(B)
Q401 2SC458(C)
Q701 2SB370(B)
IC401
Q801,Q802,Q803,Q804 PRE AMP 2SC458LG(C)
Q501,Q502 2SC458LG(C)
Q601,Q602 AUDIO AMP 2SC732 (BL)
Q603,Q604 DRIVER AMP 2SC495(O)
Q605,Q606 DRIVER AMP 2SC495(O)or(R)
Q607,Q608 DRIVER AMP 2SA505(R)or(O)
Q901,Q902 Q903,Q904 2SC1060S(C)
D702 SI-RECT-67
D703 SI-RECT-63
SW901A
SW901B
SW901C
SW901D
SW901E
SW902A
SW902B
SW903A TUNER
SW903B PHONO
SW903C TAPE /AUX
SW904A
SW904B
SW905
SW906
SW907
VOLUME
BALANCE
BASS
TREBLE
J901 PHONO IN PUT
J902 TAPE REC/PLAY
J905
J906 chL
J907 chR
F901
F902
F903
T906
PL-901
PL-902
PL-903
PL-904
PL-905
PL-906
PL-907
PL-908
PL-909
PL-910
PL-911
ME

Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.

Figure 26 SCHEMATIC DIAGRAM

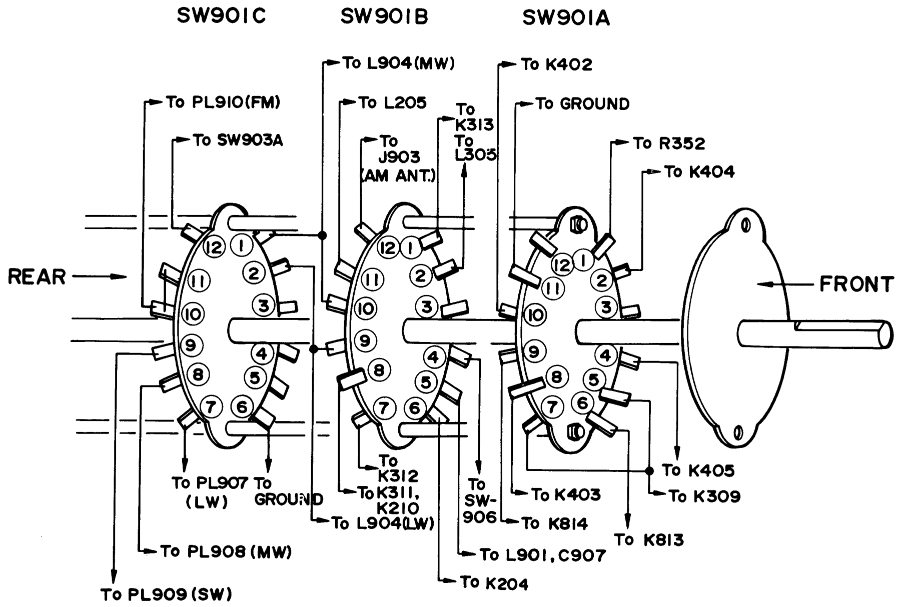
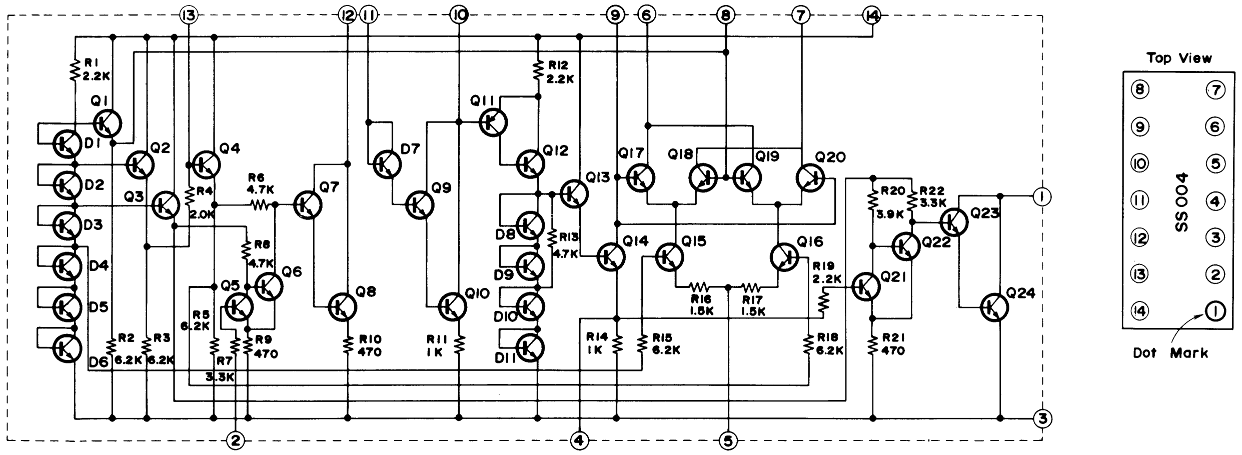

SW901C
SW901B
SW901A
To L904(MW)
To K402
To PL910(FM)
To L205
To K313
To L305
To GROUND
To SW903A
To J903 (AM ANT.)
To R352
To K404
REAR
FRONT
To PL907 (LW)
To GROUND
To K312
To K311, K210
To L904(LW)
To SW-906
To K403
To K814
To K405
To K309
To K813
To L901, C907
To K204
To PL908 (MW)
To PL909 (SW)

Figure 27 BAND SELECTOR SWITCH (SW901)


Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q20
Q21
Q22
Q23
Q24
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
R1 2.2K
R2 6.2K
R3 6.2K
R4 2.0K
R5 6.2K
R6 4.7K
R7 3.3K
R8 4.7K
R9 470
R10 470
R11 1K
R12 2.2K
R13 4.7K
R14 1K
R15 6.2K
R16 1.5K
R17 1.5K
R18 6.2K
R19 2.2K
R20 3.9K
R21 470
R22 3.3K
Top View
SS004
Dot Mark

The voltage of each terminals of I.C. (Integrated Circuit) are as follows.

PIN NO.	STEREO	MONO	NO-SIGNAL
1	0.68	10.1	10.1
2	1.31	1.32	0.09
3	0	0	0
4	1.42	0	0
5	0.69	0.69	0.66
6	4.99	5.03	5.43
7	4.80	5.00	5.41
8	3.72	3.78	3.79
9	3.72	3.78	3.79
10	10.1	10.1	10.1
11	2.68	2.68	2.56
12	10.1	10.1	10.1
13	2.80	2.82	2.68
14	10.1	10.1	10.1

Figure 28 EQUIVALENT CIRCUIT OF INTEGRATED CIRCUIT

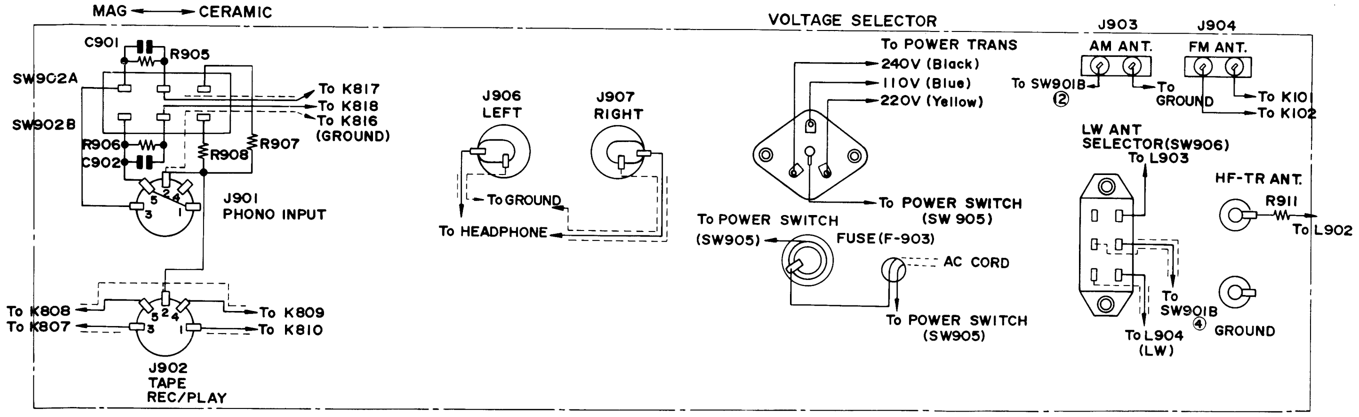

MAG
CERAMIC
C901
R905
SW902A
SW902B
R906
C902
R908
R907
To K817
To K818
To K816 (GROUND)
J901 PHONO INPUT
To K808
To K807
To K809
To K810
J902 TAPE REC/PLAY
J906 LEFT
J907 RIGHT
To GROUND
To HEADPHONE
VOLTAGE SELECTOR
To POWER TRANS
240V (Black)
110V (Blue)
220V (Yellow)
To POWER SWITCH (SW 905)
To POWER SWITCH (SW905)
FUSE (F-903)
AC CORD
To POWER SWITCH (SW905)
J903 AM ANT.
J904 FM ANT.
To SW901B ②
To GROUND
To K101
To K102
LW ANT SELECTOR(SW906) To L903
HF-TR ANT.
R911
To L902
To SW901B ④
To L904 (LW)
GROUND

Figure 29 REAR PANEL CONNECTING DIAGRAMS

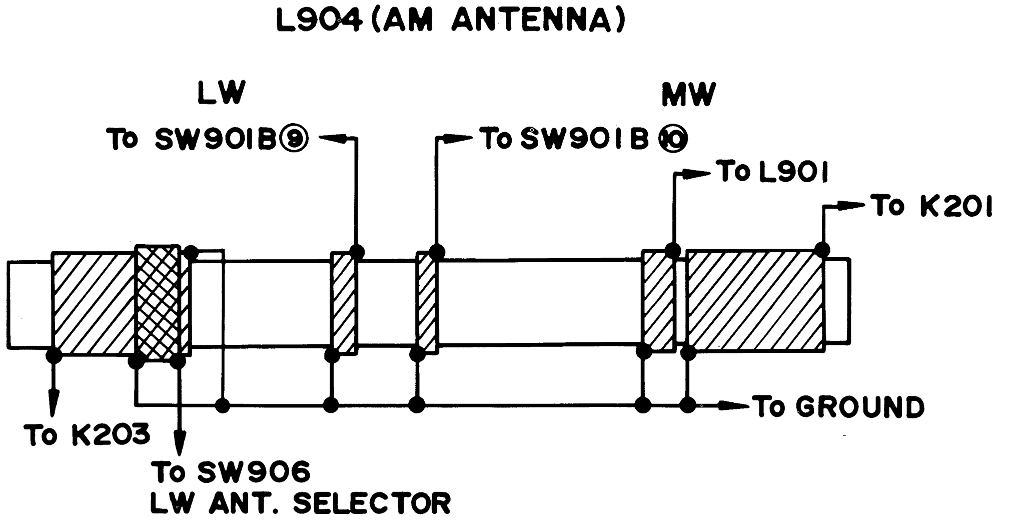
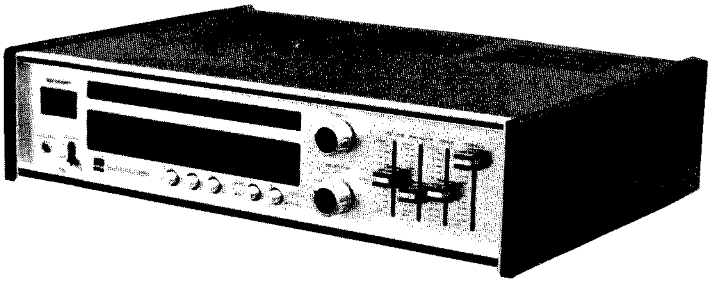

L904 (AM ANTENNA)
LW
MW
To SW901B ⑨
To SW901B ⑩
To L901
To K201
To GROUND
To K203
To SW906
LW ANT. SELECTOR

Figure 30 AM ANTENNA CONNECTING

PARTS LIST



MODEL

SA-603HA

SHARP CORPRATION
AUDIO SYSTEMS DIVISION

CAPACITORS

REF. NO.	PART NO.	DESCRIPTION
C101	D-5-157K	150PF, 50V, ±10%, Dicap
C102	D-5-228K	22PF, 50V, ±10%, Dicap
C103	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C104	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C105	D-5-228K	22PF, 50V, ±10%, Discap
C106	D-5-509C	5PF, 50V, ±0.25PF, Discap
C107	D-5-478K	47PF, 50V, ±10%, Discap
C108	D-5-205Z	.02MFD, 50V, +80 −20%, Discap
C109	D-5-209C	2PF, 50V, ±0.25PF, Discap
C111	D-5-105P	.01MFD, 50V, +100 −0%, Discap
C112	DCH-5-228J	22PF, 50V, ±5%, Discap
C113	D-5-337K	330PF, 50V, ±10%, Discap
C115	D-5-205Z	.02MFD, 50V, +80 −20%, Discap
C202	D-5-509C	5PF, 50V, ±0.25PF, Discap
C206	D-5-108K	10PF, 50V, ±10%, Discap
C207	D-5-567K	560PF, 50V, ±10%, Discap
C208	ML-5-476K	.0047MFD, 50V, ±10%, Mylar
C209	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C212	D-5-568K	56PF, 50V, ±10%, Discap
C216	S-5-336K	3300PF, 50V, ±10%, Styrol
C217	D-5-357K	350PF, 50V, ±10%, Discap
C218	D-5-157K	150PF, 50V, ±10%, Discap
C219	S-5-336K	3300PF, 50V, ±10%, Styrol
C220	D-5-405Z	.04MFD, 50V, +80% −20%, Discap
C221	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C222	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C223	D-5-405Z	.04MFD, 50V, +80% −20%, Discap
C224	D-5-405Z	.04MFD, 50V, +80% −20%, Discap
C301	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C302	D-5-106K	.001MFD, 50V, ±10%, Discap
C304	D-5-405Z	.04MFD, 50V, +80% −20%, Discap
C305	D-5-105P	.01MFD, 50V, +100% −0%, Discap
C306	CU2.5-473R	4.7MFD, 25V, +150% −10%, Electrolytic
C307	D-5-405Z	.04MFD, 50V, +80% −20%, Discap
C308	D-5-105P	.01MFD, 50V, +100% −0%, Discap
C309	D-5-105P	.01MFD, 50V, +100% −0%, Discap
C310	CU-5-103R	1MFD, 50V, +150% −10%, Electrolytic
C311	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C312	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C313	D-5-228K	22PF, 50V, ±10%, Discap
C314	D-5-157K	150PF, 50V, ±10%, Discap
C315	CU2.5-473R	4.7MFD, 25V, +150% −10%, Electrolytic
C316	CU2.5-473R	4.7MFD, 25V, +150%, −10%, Electrolytic
C317	D-5-105K	.01MFD, 50V, ±10%, Discap
C318	D-5-405Z	.04MFD, 50V, +80% −20%, Discap
C322	ML-5-105K	.01MFD, 50V, ±10%, Mylar
C324	D-5-405Z	.04MFD, 50V, +80% −20%, Discap
C325	D-5-209C	2PF, 50V, ±0.25PF, Discap
C326	D-5-278K	27PF, 50V, ±10%, Discap
C327	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C328	CU-5-103R	1MFD, 50V, +150% −10%, Electrolytic
C329	CU-5-103R	1MFD, 50V, +150% −10%, Electrolytic
C330	D-5-405Z	.04MFD, 50V, +80% −20%, Discap
C331	CU2.5-473R	4.7MFD, 25V, +150% −10%, Electrolytic
C342	ML-5-475K	.047MFD, 50V, ±10%, Mylar
C344	ML-5-105K	.01MFD, 50V, ±10%, Mylar
C345	D-5-128K	12PF, 50V, ±10%, Discap
C346	D-5-107K	100PF, 50V, ±10%, Discap
C347	CU1.6-102Q	10MFD, 16V, +100% −10%, Electrolytic
C348	CU1.6-102Q	10MFD, 16V, +100% −10%, Electrolytic
C349	D-5-227K	220PF, 50V, ±10%, Discap
C350	CU1.6-102Q	10MFD, 16V +100%, −10%, Electrolytic
C351	D-5-107K	100PF, 50V, ±10%, Discap
C352	D-1.2-474M	.47MFD, 12V, ±20%, Discap
C401	CU-1-101Q	100MFD, 10V, +100% −10%, Electrolytic
C402	D-5-205Z	.02MFD, 50V, +80% −20%, Discap
C403	CU1.6-102Q	10MFD, 16V, +100% −10%, Electrolytic
C404	CU1.6-102Q	10MFD, 16V +100 −10%, Electrolytic
C405	ML-5-105K	.01MFD, 50V, ±10%, Mylar
C406	ML-5-105K	.01MFD, 50V, ±10%, Mylar
C407	CU2.5-473R	4.7MFD, 25V, +150% −10%, Electrolytic
C408	CU2.5-473R	4.7MFD, 25V, +150% −10%, Electrolytic
C410	CU-1-471Q	470MFD, 10V, +100% −10%, Electrolytic

REF. NO.	PART NO.	DESCRIPTION
C411	CU2.5-473Q	4.7MFD, 25V, +100% −10% Electrolytic
C412	CU1.6-102Q	10MFD, 16V, +100% −10%, Electrolytic
C501,C502	ML-5-156M	.0015MFD, 50V, ±20%, Mylar
C503,C504	D-2.5-475K	.047MFD, 25V, ±10% Discap
C505,C506	AD-1-474M	.22MFD, 10V, ±20%, Aluminum Electrolytic
C507,C508	AD-2.5-474M	.47MFD, 25V, ±20%, Aluminum Electrolytic
C509,C510	ML-5-105K	.01MFD, 50V, ±10%, Mylar
C511,C512	D-1.2-104M	.1MFD, 12V, ±20%, Discap
C513,C514	ML-5-106M	.001MFD, 50V, ±20%, Mylar
C515,C516	D-2.5-155K	.015MFD, 25V, ±10%, Discap
C517	CU-3.5-101Q	100MFD, 35V, +100% −10%, Electrolytic
C519,C520	D-5-567K	560PF, 50V, ±10%, Discap
C601,C602	CU-5-103R	1MFD, 50V +150% −10%, Electrolytic
C605,C606	CU-5-472Q	47MFD, 50V, +100% −10%, Electrolytic
C607,C608	CU-5-103R	1MFD, 50V, +150% −10%, Electrolytic
C609,C610	D-5-227K	220PF, 50V, ±10%, Discap
C611,C612	CU-5-102Q	10MFD, 50V, +100% −10%, Electrolytic
C613,C614	CU-5-472Q	47MFD, 50V, +100% −10%, Electrolytic
C615,C616	CU-1-471Q	470MFD, 10V, +100% −10%, Electrolytic
C617,C618	D-5-277K	270PF, 50V, ±10%, Discap
C619,C620	D-5-277K	270PF, 50V, ±10%, Discap
C621,C622	CU3.5-100Q	1000MFD, 35V, +100% −10%, Electrolytic
C623,C624	ML-5-475M	.047MFD, 50V, ±20%, Mylar
C703	CU1.6-331Q	330MFD, 16V, +100% −10%, Electrolytic
C704	6.3L-220QP	2200MFD, 63V, +10% −0% Electrolytic
C706	PF020-224M	.22MFD, 200V, ±20%, Polypropylene film
C707	PF020-224M	.22MFD, 200V, ±20%, Polypropylene film
C708	CU-06-331Q	330MFD, 6.3V, +100% −10%, Electrolytic
C709	CU-1-101Q	100MFD, 10V, +100% −10%, Electrolytic
C801,C802	ML-5-476K	.0047MFD, 50V, ±10%, Mylar
C803,C804	ML-5-155K	.015MFD, 50V, ±10% Mylar
C805,C806	CU-5-103R	1MFD, 50V, +150% −10%, Electrolytic
C807,C808	D-5-227K	220PF, 50V, ±10%, Discap
C809,C810	CU2.5-473R	4.7MFD, 25V, +150% −10%, Electrolytic
C811,C812	D-5-338K	33PF, 50V, ±10%, Discap
C813,C814	CU-1-332Q	33MFD, 10V, +100% −10%, Electrolytic
C815,C816	CU1.6-102Q	10MFD, 16V, +100% −10% Electrolytic
C817,C818	CU2.5-333R	3.3MFD, 25V, +150% −10%, Electrolytic
C819	CU-2.5-102Q	10MFD, 25V, +100% −10%, Electrolytic
C901	D-5-477K	470PF, 50V, ±10%, Discap
C902	D-5-477K	470PF, 50V, ±10%, Discap
C903	OL-1K-405M	.04MFD, 1000V, ±20%, Oil
C906	D-5-478K	47PF, 50V, ±10%, Discap

REF. NO.	PART NO.	DESCRIPTION
C907	D-5-107K	100PF, 50V, ±10%, Discap
C908	D-5-277K	270PF, 50V, ±10%, Discap
C909	D-5-688K	68PF, 50V, ±10%, Discap
C910	D-5-687K	680PF, 50V, ±10%, Discap
C911	D-5-357K	350PF, 50V, ±10%, Discap

RESISTORS

R101	1/4M-100KK	100K ohm
R102	1/4M–1MK	1Meg ohm
R103	1/4M-39J	39 ohm, 1/4W, ±5%, Carbon
R104	1/4M-33K	33 ohm
R105	1/4M-15KK	15K ohm
R106	1/4M-1.5KK	1.5K ohm
R107	1/4M-22KK	22K ohm
R108	1/4M-6.8KK	6.8K ohm
R112	1/4M-270K	270 ohm
R113	1/4M-270K	270 ohm
R201	1/4SU-220K	220 ohm
R202	1/4SA-220K	220 ohm
R203	1/4SA-220K	220 ohm
R204	1/4SA-33KK	33K ohm
R205	1/4SU-47KK	47KK ohm
R206	1/4SA2.7KK	2.7K ohm
R207	1/4SU-330K	330 ohm
R208	1/4SU1.2KK	1.2K ohm
R301	1/4M-33KK	33K ohm
R302	1/4SU-100K	100 ohm
R303	1/4M-18KK	18K ohm
R304	1/4M-5.6KK	5.6K ohm
R305	1/4M-1KK	1K ohm
R306	1/4M-22KK	22K ohm
R307	1/4SU-270K	270 ohm
R308	1/4SU1.5KK	1.5K ohm
R309	1/4M-15KK	15K ohm
R310	1/4M-1KK	1K ohm
R311	1/4M-5.6KK	5.6K ohm
R312	1/4SU-47KK	47K ohm
R313	1/4SU-5.6KK	5.6K ohm
R314	1/4M-1KK	1K ohm
R316	1/4M-3.3KK	3.3K ohm
R317	1/4M-18KK	18K ohm
R318	1/4SU-120KK	120K ohm
R319	1/4SU-22KK	22K ohm
R320	1/4M-680K	680 ohm
R321	1/4M-10KK	10K ohm
R322	1/4M-3.9KK	3.9K ohm
R323	1/4M-56KK	56K ohm
R324	1/4M-1KK	1K ohm
R325	1/4M-12KK	12K ohm
R326	1/4M-2.2KK	2.2K ohm
R327	1/2M-470K	470 ohm, 1/2W, ±10%, Carbon
R328	1/4SU-680K	680 ohm
R329	1/4SA-15KK	15K ohm
R331	1/4M-10KK	10K ohm
R334	1/4M-1KK	1K ohm
R335	1/4M-1KK	1K ohm
R336	1/4M-47KK	47K ohm
R337	1/4M-1.8KK	1.8K ohm
R338	1/4SU-8.2KK	8.2K ohm
R342	1/4M-8.2KK	8.2K ohm
R343	1/4M-1.5KK	1.5K ohm
R344	1/4M-56KK	56K ohm
R347	1/4SU-47KK	47K ohm
R348	1/4M-1KK	1K ohm
R349	1/2M-270K	270 ohm, 1/2W, ±10%, Carbon
R350	1/4M-10KK	10K ohm

REF. NO.	PART NO.	DESCRIPTION
R352	1/4M-1.5KK	1.5K ohm
R353	1/4M-4.7KK	4.7K ohm
R354	1/4SU-12KK	12K ohm
R355	1/4M-1KK	1K ohm
R356	1/4SA-1KK	1K ohm
R401	1/4M-10KK	10K ohm
R402	1/4M-120KJ	120K ohm, 1/4W, ±5%, Carbon
R404	1/4M-5.6KK	5.6K ohm
R405	1/4M-5.6KK	5.6K ohm
R406	1/4M-15KK	15K ohm
R407	1/4M-15KK	15K ohm
R408	1/4M-33KK	33K ohm
R409	1/4M-33KK	33K ohm
R411	1/4M-2.2KK	2.2K ohm
R413	1/4M-3.3KK	3.3K ohm
R415	1/4SU-270KJ	270K ohm, 1/4W, ±5%, Carbon
R416	1/4SA-1MK	1Meg ohm
R417	1/4SA-22KK	22K ohm
R418	1/4SA-10KK	10K ohm
R501,R502	1/4SA-6.8KK	6.8K ohm
R503,R504	1/4SA-6.8KJ	6.8K ohm, 1/4W, ±5%, Carbon
R505,R506	1/4SA-10KK	10K ohm
R507,R508	1/4SA-22KK	22K ohm
R509,R510	1/4SA-56KK	56K ohm
R511,R512	1/4SA-820KK	820K ohm
R513,R514	1/4SA-470J	470 ohm, 1/4W, ±5%, Carbon
R515,R516	1/4SA-15KK	15K ohm
R517,R518	1/4SA-18KK	18K ohm
R519,R520	1/4SA-3.3KK	3.3K ohm
R523,R524	1/4SA-6.8KK	6.8K ohm
R529	1/4SA-4.7KK	4.7K ohm
R601,R602	1/4SU-680KK	680K ohm
R603,R604	1/4SU-39KK	39K ohm
R605,R606	1/4SU-2.7KK	2.7K ohm
R609,R610	1/4SU-33J	33 ohm, 1/4W, ±5%, Carbon
R611,R612	1/4SU-10KK	10K ohm
R615,R616	1/4SU-10KK	10K ohm
R617,R618	1/4SU-39KK	39K ohm
R619,R620	1/4SU-680K	680 ohm
R621,R622	1/4SU-2.2KK	2.2K ohm
R625,R626	1/4SU-120K	120 ohm
R627,R628	1/4SU-6.8KJ	6.8K ohm, 1/4W, ±5%, Carbon
R629,R630	1/4SU-470K	470 ohm
R631,R632	1/4SU-10K	10 ohm
R633,R634	1/4SU-470K	470 ohm
R635,R636	1/4SU-6.8KJ	6.8K ohm, 1/4W, ±5%, Carbon
R637,R638	1PN-0.5K	0.5 ohm, 1W, ±10%, Metallic
R639,R640	1PN-0.5K	0.5 ohm, 1W, ±10%, Metallic
R641,R642	1/2M-10K	10 ohm, 1/2W, ±10%, Carbon
R643,R644	1/4SU-10K	10 ohm
R645,R646	1/4SU-3.3KK	3.3K ohm
R701	1/4SU-560K	560 ohm
R702	2PO-820K	820 ohm, 2W, ±10%, Oxide film
R801,R802	1/4SU-820K	820 ohm
R803,R804	1/4SU-15KJ	15K ohm, 1/4W, ±5%, Carbon
R805,R806	1/4SU-180KJ	180K ohm, 1/4W, ±5%, Carbon
R807,R808	1/4SU-100KK	100K ohm
R809,R810	1/4SU-150KK	150K ohm
R811,R812	1/4SU-270KK	270K ohm
R813,R814	1/4SU-22KK	22K ohm
R815,R816	1/4SU-390J	390 ohm, 1/4W, ±5%, Carbon
R817,R818	1/4SU-15KK	15K ohm
R819,R820	1/4SU-2.7KK	2.7K ohm
R821,R822	1/4SU-4.7KK	4.7K ohm
R823,R824	1/4SU-56KJ	56K ohm, 1/4W, ±5%, Carbon
R825,R826	1/4SU-22KJ	22K ohm, 1/4W, ±5%, Carbon
R827,R828	1/4SU-2.7KJ	2.7K ohm, 1/4W, ±5%, Carbon
R829,R830	1/4SU-100KJ	100K ohm, 1/4W, ±5%, Carbon
R831	1/4SU-2.2KK	2.2K ohm
R905	1/4SA-100KJ	100K ohm, 1/4W, ±5%, Carbon
R906	1/4SA-100KJ	100K ohm, 1/4W, ±5%, Carbon
R907	1/4SA-2.2KJ	2.2K ohm, 1/4W, ±5%, Carbon
R908	1/4SA-2.2KJ	2.2K ohm, 1/4W, ±5%, Carbon
R909	1/2M-270K	270 ohm, 1/2W, ±10%, Carbon
R910	1/2M-270K	270 ohm, 1/2W, ±10%, Carbon
R911	1/4M-1.2KK	1.2K ohm
R912	1/4M-1.2KK	1.2K ohm
R913	3PO-1.5KK	1.5K ohm, 3W, 10%, Oxide film
R914	1/4SA-1KK	1K ohm

* Unless otherwise specified resistors are ¼W. ±10%, Carbon type.

CONTROLS

VC101, VC102, VC103, VC104, VC105, TC101, TC102	XVC-192	Variable Tuning Gang with Trimmers CT101; Trimmer, FM Antenna CT102; Trimmer, FM RF
TC103	TO-862	Trimmer, FM Oscillator
C201,C203, C205	TO-860	Trimmers; C201; SW Antenna C203; MW Antenna C205; LW Antenna
C213,C214, C215	TO-860	Trimmers; C213; SW Oscillator C214; MW Oscillator C215; LW Oscillator
R403	8V-3528	50K ohm (B type), Pot., IC Current Adjust Control
R530A,B	X8V-3488	50K ohm (B type), Volume Control
R531	X8V-3486	100K ohm (B type), Balance Control
R532A,B	X8V-3484	100K ohm (A type), Bass Control
R533A,B	X8V-3484	100K ohm (A type), Treble Control
R613,R614	8V-3510	100K ohm, Pot., Center Voltage Adjust
R623,R624	8V-668	100 ohm, Pot., Idle Current Adjust

SEMICONDUCTORS

Q101	3SK30 Ⓑ	Field Effect Transistor, FM RF Amp.
Q102	2SC535 Ⓑ	Transistor, FM Converter
Q201	2SC460 Ⓑ	Transistor, AM Local Oscillator
Q301	2SC460 Ⓑ	Transistor, 1st FM IF Amp.
Q302	2SC460 Ⓑ	Transistor, 2nd FM/1st AM IF Amp.
Q303	2SC460 Ⓑ	Transistor, 3rd FM/2nd AM IF Amp.
Q304	2SC460 Ⓑ	Transistor, 4th FM IF Amp.
Q305	2SC460 Ⓒ	Transistor, AM RF Amp.
Q306	2SC460 Ⓑ	Transistor, AM Mixer
Q307	2SC458 Ⓑ	Transistor, Tuning Meter Amp.
Q401	2SC458 Ⓒ	Transistor, Muting
Q501,Q502	2SC458LG Ⓒ	Transistor, Pre-Amp.
Q601,Q602	2SC732S (BL)	Transistor, Audio Amp.
Q603,Q604	2SC495S Ⓞ	Transistor, Driver Amp.
Q605,Q606	2SC495S Ⓞ or Ⓡ	Transistor, Driver Amp.
Q607,Q608	2SA505S Ⓡ or Ⓞ	Transistor, Driver Amp.
Q701	2SB370 Ⓑ	Transistor, FM MPX Stereo Indicator Amp.
Q801,Q802	2SC458LG Ⓒ	Transistor, Equalizer Amp.

REF. NO.	PART NO.	DESCRIPTION
Q803,Q804	2SC458LG ©	Transistor, Equalizer Amp.
Q901,Q902 Q903,Q904	2SC1060S ©	Transistor, Power Amp.
IC401	4IC-405	Integrated Circuit, FM MPX Stereo Circuit
D301	1N60	Diode, FM Bias Stabilizer
D302	1N60	Diode, AM Detector
D303	1N60	Diode, FM Limiter
D304,D305	1N60 Ⓟ	Diode, FM Detector (Matched Pair)
D308	HV-23 (BL)	Diode, Tuning Meter
D309	1N60	Diode, FM MPX Muting
D310	1N60	Diode, Tuning Meter
D311	1N60	Diode, FM AGC
D312	1N60	Diode, FM AGC
D313	1S2076	Diode, AM AGC
D314	1N60	Diode, FM MPX Muting
D601,D602 D603,D604	S3016R	Diode, Thermal Compensation
D701	BZ-100	Diode, Zener
D702	SI-RECT-67	Diode, Rectifier
D703	SI-RECT-63	Diode, Rectifier

PACKAGED CIRCUITS

M302	PRC-331	Capristor, 500 ohm + .02MFD
M303	PRC-331	Capristor, 500 ohm + .02MFD
M304	PRC-331	Capristor, 500 ohm + .02MFD
M305	PRC-331	Capristor, 500 ohm + .02MFD
M306	PRC-315	Capristor, 4.7K ohm + .02MFD
M307	PRC-405	Capristor, 5.6K ohm x 2 + 330PF x 2
M308	PRC-319	Capristor, 1K ohm + .01MFD

COILS AND TRANSFORMERS

REF. NO.	PART NO.	DESCRIPTION
L101a	4L-178A	Coil, FM Antenna
L101b	4L-178A	Coil, FM Antenna
L102a	4L-542C	Coil, FM RF
L102b	4L-544C	Coil, FM RF
L103	4L-548C	Coil, FM Antenna
L104	7L-947	Coil, Emitter Choke
L105	HL-100M	Coil, Choke (10μH)
L106	4L-412B	Coil, FM Oscillator
L107	HL-108M	Coil, Choke (1μH)
L201	4L-190A	Coil, SW Antenna
L202	4L-385B	Coil, SW Oscillator
L203	4L-365B	Coil, MW Oscillator
L204	4L-378B	Coil, LW Oscillator
L205	HL-828M	Coil, SW Loading (8.2μH)
L303	HL-102M	Coil, Choke (1mH)
L304	HL-470M	Coil, Choke (47μH)
L305	HL-150M	Coil, Choke (15μH)
L306	HL-470M	Coil, Choke (47μH)
L401	4L-998	Coil, 19kHz Tuned
L402	4L-002	Coil, 19kHz Tuned
L403	4L-004	Coil, 38kHz Tuned
L404	4L-006	Coil, 38kHz Trap
L405	4L-006	Coil, 38kHz Trap
L901	HL-470M	Coil, Choke (47μH)
L902	HL-821M	Coil, Choke (820μH)
L903	HL-102M	Coil, Choke (1mH)
L904	4L-189A	Coil, LW/MW Antenna
T101	4IF-840	Transformer, 1st FM IF
T301	4IF-856	Transformer, 1st AM IF & Ceramic Filter
	(4IF-876)	(Holland)
T302	4IF-858	Transformer, AM Detector
	(4IF-878)	(Holland)
T303	4IF-823	Transformer, FM Discriminator
T906	5T-680SEV	Transformer, Power Supply
CF301	CF-3779	Ceramic, Filter, 2nd FM IF
CF302	CF-3779	Ceramic Filter, 4th FM IF

MISCELLANEOUS

	PG-449	Plug, FM Antenna
	ANT-WIRE37	Wire, FM Antenna Lead (300 ohm)
	2CAB-3779-01	Cabinet, Main Box
	8K-434	Knob, Band Selector
	8K-438-01	Knob, Power Switch
	8K-440-01	Knob Tuning
	8K-486-04	Knob, Volume, Balance, Bass, Treble Controls
	8K-44 7	Button, AUX/TAPE, Phono, Tuner Loudness, Mode Switches
	PA-U-3779	Pannel, Front Assembly
	PANEL-3779-01	Panel, Front
	ACRYL-3779-01	Plate, Function Control (Acrylic Resin)
	SHEET-189	Felt, AUX/TAPE, Phono, Tuner, Loudness, Mode Switches
	SPACER911B	Spacer, Headphone (Insulator)
	SO-COV-515	Cover, Voltage Selector Socket
	FH-ANG-515	Bracket, Fuse Holder
F-903	F-0.7ASMK	Fuse, Power Supply, 220/240V
	FUSE-1.5S	Fuse, Power Supply, 110V
	SHEET-456	Felt, Power Switch
	SPRING	Spring, Dial Cord
	SSHEET3775	Cover Felt, Dial Pointer
	DIAL-U3779	Dial Plate, Assembly
	DIAL-3779-01	Plate, Dial Scale
	PL-DEC-159	Cover, Function Indicator Lamp
	RAIL-3779	Rail, Dial Pointer
	DIAL-S3779	Spacer, Dial Shaft
	PG-439	Plug, Power Supply (ACC-325SEV)
	ACC-325SEV	Cord, Power Supply (SEV)
	ACC-305	Cord, Power Supply with Plug
	PCB-3779C	Printed Circuit Board, RF
SW901	13S-126	Switch, Band Selector
	HON-A-3779	Bracket, Heat Sink
	YD1C	Spacer, Power Transistor
	SK16B	Insulator, Power Transistor
	XHON-P-769	Heat Sink
	LG-401	Lug, C903 Connecting
	CH-64	Holder, Bar Antenna
	CH-ANG3779	Bracket, Bar Antenna Holder
	VC-GOMU	Cover, Meter Illuminator Lamp
	P-A-3779D	Bracket, Pulley, Dial Cord
	P-SHAFT	Shaft, Pulley, Dial Cord
	P-506	Pulley, Dial Cord
	G-COV-3779	Cover, Function Indicator Lamp
	SPAC-4062D	Spacer, Headphone
SW904A,B SW907	6S-95	Switch, Loudness, Mode
	P-AMP-UNIT	Pri-Amplifier Unit, Assembly
	PCB-3779D	Printed Circuit Board, Pre-Amplifier
SW903	6S-91	Switch, AUX/TAPE, Phono, Tuner Selector
	TONE-UNITA	Tone Unit, Assembly
	PCB-3775B	Printed Circuit Board, Tone
	TONE-UNITB	Tone Unit, Assembly

REF. NO.	PART NO.	DESCRIPTION
	PCB-3779F	Printed Circuit Board, Tone
PL-911	PL-585	Lamp, FM Stereo Indicator
PL-907	PL-585	Lamp, Band Indicator, LW
PL-908	PL-585	Lamp, Band Indicator, MW
PL-909	PL-585	Lamp, Band Indicator, SW
PL-910	PL-585	Lamp, Band Indicator, FM
	XP-A-3779A	Bracket, Pulley, Dial Cord
	XP-A-3779B	Bracket, Pulley, Dial Cord
	XP-A-3779C	Bracket, Pulley, Dial Cord
	XVA-616	Bracket, Control Switch
	XDS-524	Shaft, Tuning
	XDS-520	Shaft, Band Selector Switch
SW905	XOS-93	Switch, Power Supply
J906,J907	SO-035	Socket, DIN type 2 pins, Speaker
	SO-037	Socket, Voltage Selector
J904	SO-039	Socket, DIN type, FM Antenna
J903	SO-041	Socket, DIN type, AM Antenna
J901,J902	SO-971	Socket, DIN type, 5 pins (PHONO, TAPE)
	FH-949	Holder, Fuse (Power Supply)
J905	J-945	Jack, Headphone
SW906	5S-69	Switch, LW Antenna Selector
SW902A,B	13S-402	Switch, Cartridge Selector
	XT-107	Terminal, (Red), HF-TR Antenna
	XT-109	Terminal, (Black), Grounding
	XT-ANG3779	Bracket, Rear Terminal
	LG-301	Lug Plate, Capacitor Connecting
	LG-401	Lug,Plate, Connecting
	FH-127	Holder, Fuse (Circuit)
	VC-GOMU	Cushion, Variable Capacitor Bracket
	GOMU-C3779	Cushion, Tuning Meter
	SNAP-BUSH	Bushing, Power Supply Cord
	IFU-038	IF Unit, Assembly
	PCB-3779B	Printed Circuit Board, IF
	AFU-339	Main-Amplifier Unit, Assembly
	PCB-3779G	Printed Circuit Board
ME1	METER-3719	Meter, Tuning (Orange)
	X2MC-3779	Chassis, Main
	XSUBA3779B	Bracket, Main Chassis
	XTUGITE779	Jointer, Tuning Shaft
	XFMT-568	FM Tuner Unit, Assembly
	PCB-3693A	Printed Circuit Board, FM Tuner
	SHIELD-COV	Shield Cover, FM Tuner
	XDP-424	Drum, Dial Cord
	PL-567	Lamp, Dial Scale Illumination
	SISIN-3775-01	Pointer Dial
	ACC-331BS	Cord, Power Supply (BS)